D-25/250

SERVICE MANUAL

US Model
Canadian Model
D-25
AEP Model
UK Model
E Model
Australian Model
D-250

Discman

SPECIFICATIONS

CD section

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs Wavelength: 780 nm Emission duration: Continuous Laser output: Less than 44.6 μW * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.
Error correction	Sony Super Strategy Cross Interleave Reed Solomon Code
D-A conversion	16-bit linear, 4 fs digital filter
Frequency response	20–20,000 Hz ±1 dB*
Dynamic range	More than 90 dB*
Signal-to-noise ratio	More than 85 dB
Wow and flutter	Below measurable limit*
Outputs (at 9 V input level)	Line output (stereo minijack) Output level 0.7 V rms at 50 kilohms Load impedance over 10 kilohms Headphones (stereo minijack) 9 mW + 9 mW at 32 ohms

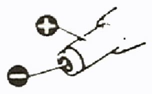
* Measured by EIAJ CP-307

* Measured by EIAJ CP-307

General

Power requirements	Supplied rechargeable battery pack BP-2 or BP-100 (optional) DC IN 9 V jack accepts: Supplied AC power adaptor Sony CPM-100P car mount plate (optional) or Sony DCC-120A car battery cord (optional) for use on 12 V car battery
Power consumption	1.9 W DC
Dimension	Approx. 125.8×20.8×134.6 mm ($5 \times \frac{27}{32} \times 5\frac{3}{8}$ in.) (w/h/d) not incl. inclined part (depth), projecting parts and controls Approx. 127.3×24.1×136.2 mm ($5\frac{1}{8} \times \frac{31}{32} \times 5\frac{3}{8}$ in.) (w/h/d) incl. projecting parts and controls
Weight	Approx. 380 g (13.5 oz), not incl. rechargeable battery Approx. 460 g (1 lb) incl. rechargeable battery
Supplied accessories	AC power adaptor (1) Rechargeable battery pack (1) Carrying case (1) Connecting cord (1) (stereo miniplug ⟷ two phono plugs)

Note: Use only the supplied AC power adaptor or the recommended car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



CAUTION

- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

MICROFILM

COMPACT DISC COMPACT PLAYER

SONY®

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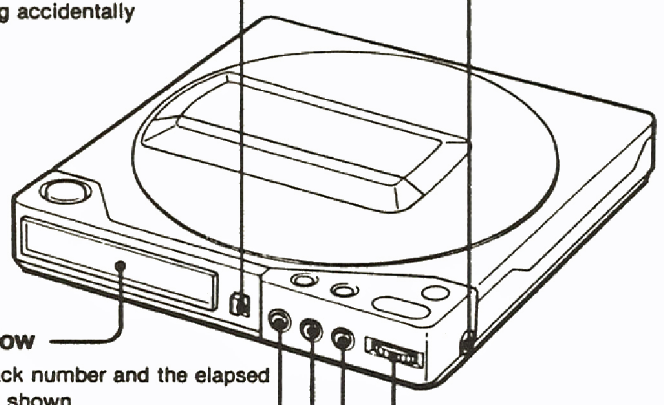
SECTION 1
GENERAL

Location and Function of Controls



HOLD switch
Slide this switch to the right so that its orange mark appears. This locks the buttons to prevent them from being accidentally depressed.

PHONES (headphones) jack (stereo minijack)

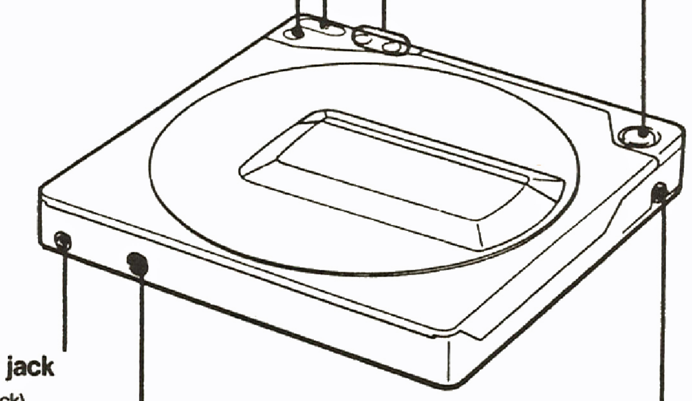
Display window
Normally the track number and the elapsed playing time are shown.
When the power is supplied through the DC IN 9V jack, the window will light up.

VOLUME control
(for headphones listening)

ENTER/REMAIN button

KEY MODE (AMS*/SEARCH/INDEX) button

PLAY MODE button



▶II (play/pause) button

|◀◀ ▶▶| (AMS/SEARCH/INDEX) buttons

■ STOP button

OPEN button

LINE OUT jack
(stereo minijack)

DC IN 9 V (external power input) jack

REMOTE control jack
Connect the optional remote control kit.

*AMS is the abbreviation of Automatic Music Sensor.

SECTION 2

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Before Replacing the Optical Block

Please be sure to check thoroughly the parameters as par the "Optical Block Checking Procedures" (Part No.: 9-960-027-11) issued separately before replacing the optical block.
Note and specifications required to check are given below.

- FOK output: IC501 ⑨ pin
  When checking FOK, remove the lead wire to disc motor and unsolder and open IC801 ㉔ pin.
- S carve P-to-P value: 2.95 Vp-p
- Adjusted part for focus gain adjustment: RV505
- RF signal P-to-P value: 0.75 – 1.4 Vp-p
- Traverse signal P-to-P value: 1.8 Vp-p
- The grating holder can not repair.
- Adjusted part for tracking gain adjustment: RV501

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe, from more than 30 cm away from the objective lens.

Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S901 (leaf SW type) is turned on. The laser diode will always emit even if focus search is not performed in service mode.
The laser diode is checked using the current value which flows to the laser diode inside the UPF.

Procedure 1 (service mode or normal operation)
Check the laser diode emission with the eye.

1. Open upper panel.
2. S901 on as Fig. 1.
   (In service mode, this operation is not necessary.)
3. Press the ▶II key.
   (In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At this time, the laser diode goes on about 10 seconds due to focus serarch. If it does not, APC circuit or UPF is defective.

Procedrue 2 (service mode or normal operation)
Check by the curent with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the UPF.
   (Label on UPF)

   KSS-165A
   JAPAN
   S123
   499 — current value
   This means 49.9 mA.

   The current value varies with the set.
3. Connect a VOM as shown in Fig. 2.
4. Press the ▶II key.
5. Calculate the current by the VOM reading.
   VOM reading (V) ÷ 10 = current (A)
   ex. VOM reading = 0.49 V
   0.49 ÷ 10 = 0.049 (A) = 49 (mA)
6. Confirm that the ammeter reading is within the range given below.
   value on label $^{+5}_{-11}$ mA (25°C)
   variation relative to temperature:
   0.4 mA/°C
   (Current increases when temperature rises and decreases when it drops.)

   If the value is more than the range given, APC circuit has been defective or the laser diode has deteriorated. If it is less, APC circuit or UPF is defective.

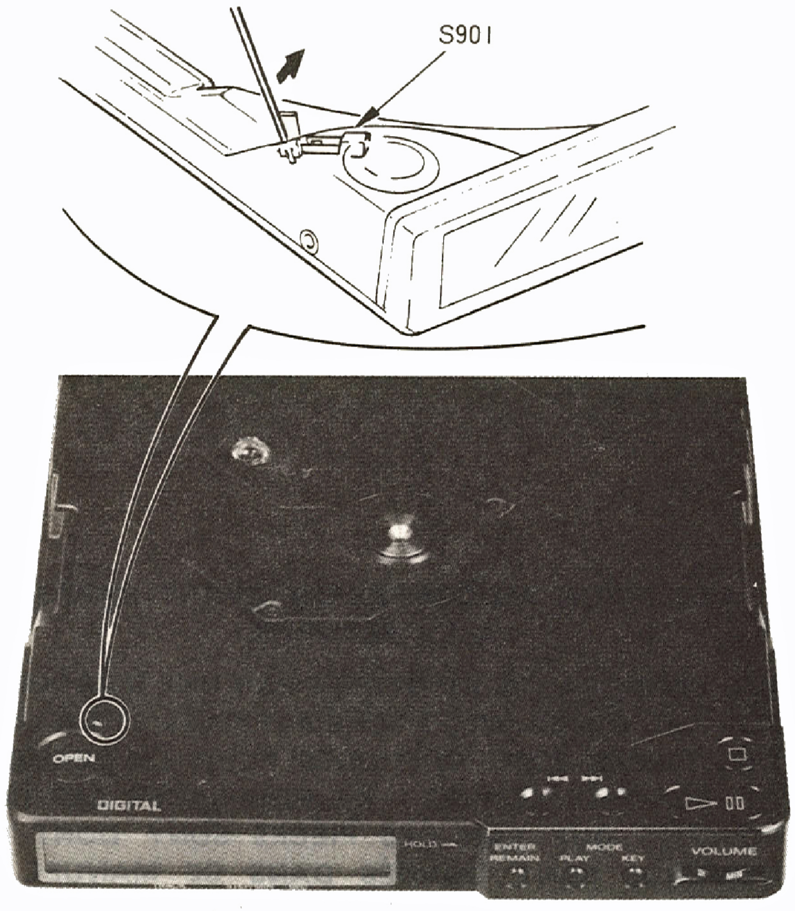

S901
OPEN
DIGITAL
HOLD
ENTER
REMAIN
PLAY
MODE
KEY
VOLUME

Fig. 1 Turning S901 on

– servo board –

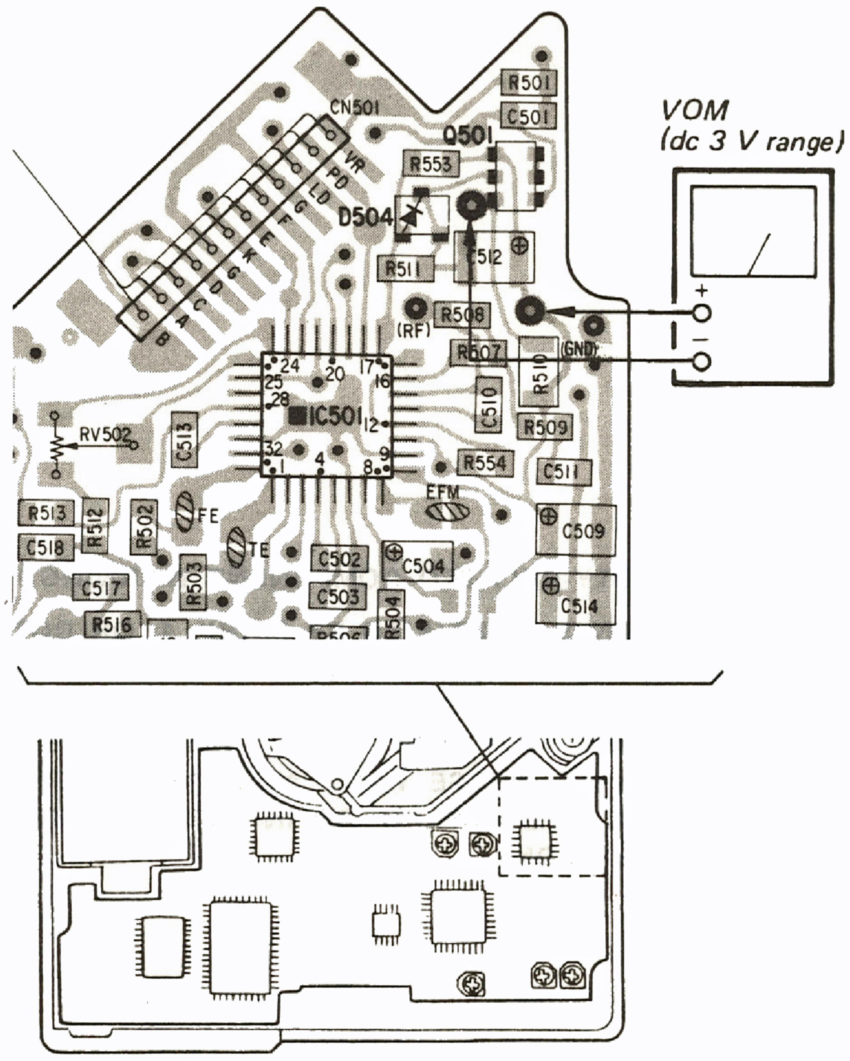
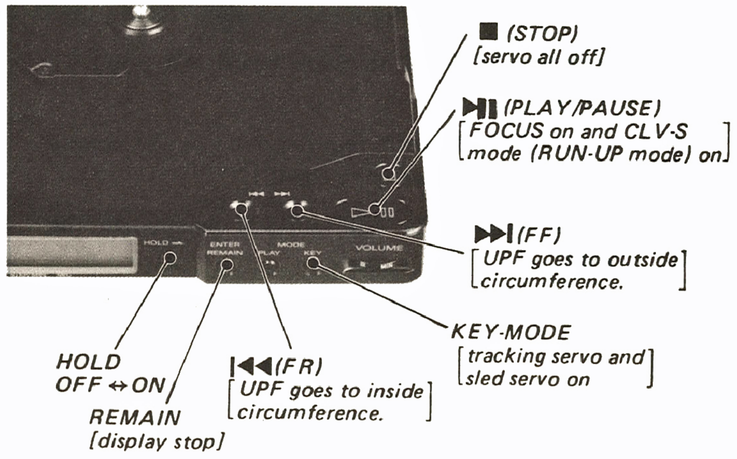

VOM
(dc 3 V range)
CN501
R501
C501
Q501
R553
VR
PD
LD
D504
R511
C512
R508
(RF)
R507
(GND)
R510
C510
R509
IC501
24
20
17
16
25
28
12
32
1
4
8
RV502
C513
R554
C511
EFM
C509
R513
R512
C518
R502
FE
TE
C502
C504
C517
R503
C503
R504
C514
R516
+
−

Fig. 2 VOM Connection

SERVICE MODE (service program)

This set has built-in service program in the micro-computer as usual sets.
The operation method of service program is explained below.

[ ]: *Main operation in service mode for details, refer to step 2.*


■ (STOP)
[servo all off]
▶II (PLAY/PAUSE)
[FOCUS on and CLV-S mode (RUN-UP mode) on]
▶▶| (FF)
[UPF goes to outside circumference.]
KEY-MODE
[tracking servo and sled servo on]
|◀◀ (FR)
[UPF goes to inside circumference.]
HOLD
OFF ↔ ON
REMAIN
[display stop]

Be sure to set HOLD switch OFF.
If not key inputs can not be operated.

Fig. 3 Key Positions

Step 1 (Service Mode setting method)

1. Turn the HOLD switch OFF with the external power supply not plugged in (no power applied to set) and press the ▶II key.
2. Solder jumper TEST point.
   (IC801 pin ⑨ (BAT-E) pin is grounded.
3. Plug in external power supply.
   This puts the set into service mode.

Step 2 (Service Mode operation)

1. When service mode is set, the display will change 6 times, and those 6 changes will be repeated over and over.
   With this the LCD display should be present in service mode. Even if LCD does not display, other operations will be performed.
2. When ▶▶| or |◀◀ key is pressed, the UPF moves to the inside or outside circumference. Tracking servo and sled servo go off when this is done, so press KEY-MODE to turn on the tracking servo if necessary.
3. When REMAIN is pressed, the display stops. When REMAIN is released, the display continues to change. This allows check of each segment.
4. When ▶II key is pressed, CLV-S (pull-in mode) starts while performing focus search. When there is no disc installed, focus search is repeated several times while disc motor is rotating.
5. When KEY-MODE is pressed, tracking servo, sled servo and CLV-A (servo during PLAY) go ON.
6. When 4 and 5 are performed, the disc begins to play. At this time, the top panel should be closed and S901 are to be ON.
7. All servo (focus, tracking, sled and spindle) go off when ■ key is pressed. But disc motor continues rotating for a while by inartia.

Step 3 (Service Mode release)

1. First be sure to unplug the external power supply, then remove the TEST point solder jumper.
2. The set will now operated normally.

— main board —

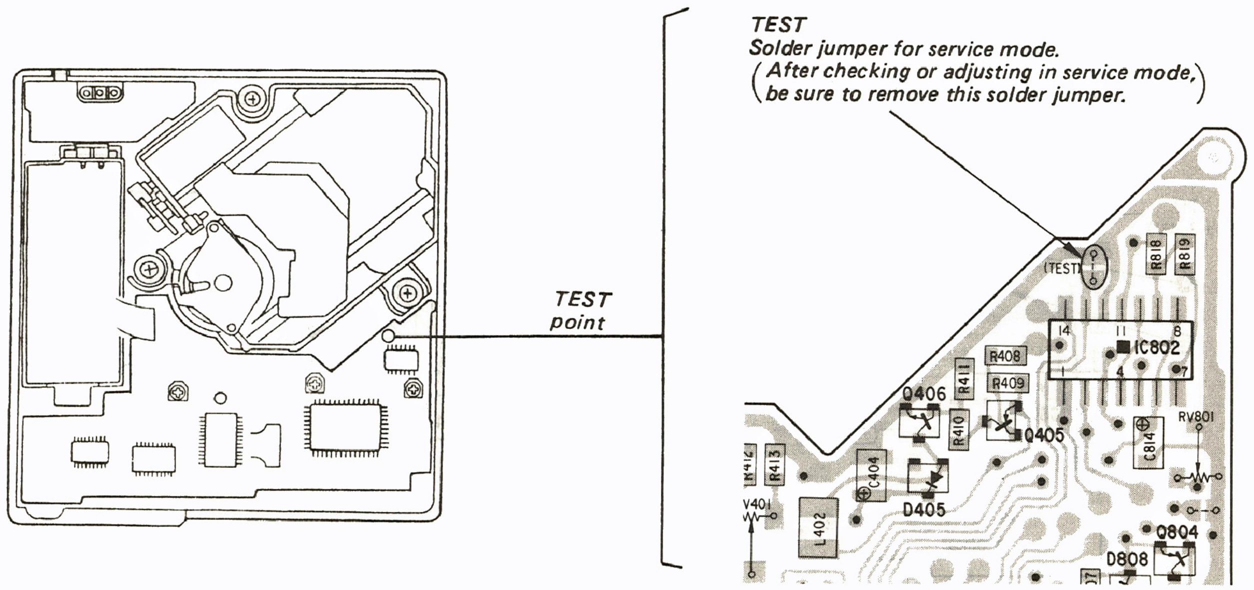

TEST point
TEST
Solder jumper for service mode.
(After checking or adjusting in service mode, be sure to remove this solder jumper.)
(TEST)
R818
R819
IC802
14
11
8
1
4
7
R408
R409
R411
R410
Q406
Q405
D405
C404
C814
RV801
R412
R413
V401
L402
Q804
D808

Fig. 4 TEST Point Position

SECTION 3
ELECTRICAL ADJUSTMENTS

Notes on Adjustment

1. Perform adjustments except for RECHARGEABLE VOLTAGE ADJUSTMENT and BATTERY DISPLAY ADJUSTMENT in service mode. Be sure to release service mode after completing adjustment.
   (Refer to "Service Mode (service program)" on page 5.)
2. Perform adjustments in the order given.
3. Use YEDS-18 disc (part No.: 3-702-101-01) unless otherwise indicated.
4. Power supply voltage: DC 9 V
   HOLD switch: OFF

PREPARATION

Put the set into service mode (see page 5) and perform the following checks. Repair if there are any abnormalities.

- **Sled Motor Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶▶| , |◀◀ keys and make sure that the UPF moves smoothly, without catching, from the inmost → outmost → inmost circumference.
   ▶▶| : UPF moves outward
   |◀◀ : UPF moves inward

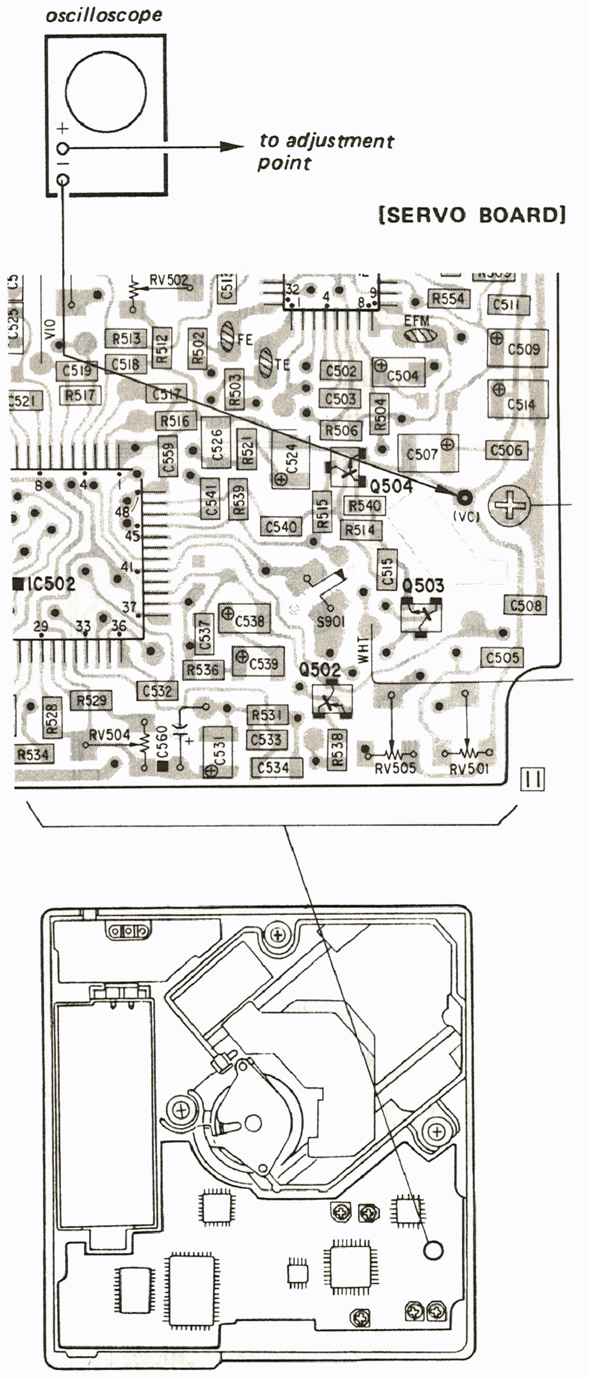
- **Focus Search Check**

1. Press the OPEN button and open the top panel.
2. Press the ▶II key. (Focus search is performed continuously.)
3. Observe the UPF objective lens and check that it moves smoothly up and down with no catching or noises.
4. Press the ■ key.
   Check that focus search operation stops. If it does not stop, press the ■ key again longer than before. But disc motor continues rotating for a while by inartia.

VC (1/2 Vcc) Connecting Point

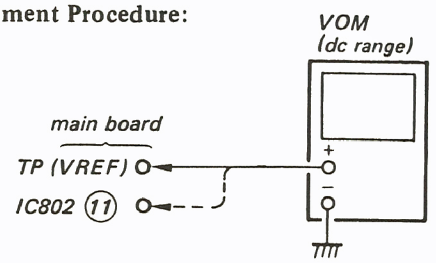
FOCUS BIAS ADJUSTMENT
TRACKING BALANCE ADJUSTMENT

When the adjustments above are performed, connect the ⊖ side of oscilloscope to the point below.


oscilloscope
+
−
to adjustment point
[SERVO BOARD]
RV502
VIO
R513
R512
R502
FE
TE
EFM
R554
C511
C509
C514
C519
C518
C517
C521
R517
R503
C502
C504
C503
R504
R516
R506
C507
C506
C559
C526
R521
C524
Q504
(VC)
C541
R539
R540
C540
R515
R514
IC502
C515
Q503
S901
C508
C538
C537
C539
R536
Q502
WHT
C505
R529
C532
R528
R531
RV504
C560
C531
C533
C534
R534
R538
RV505
RV501
11

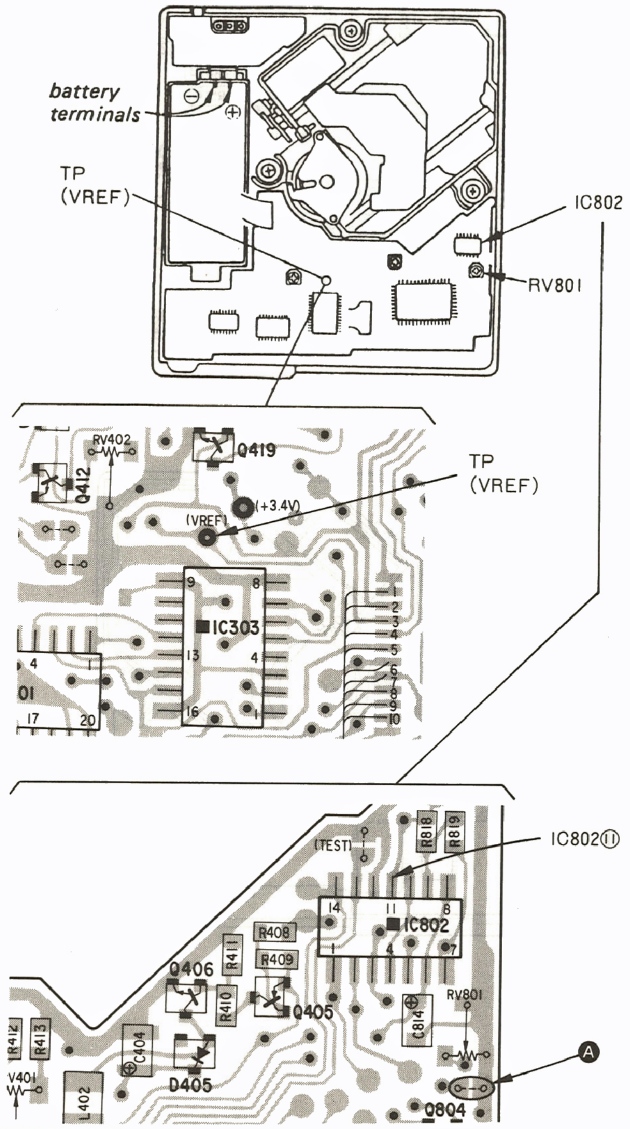
Battery Display Adjustment

Adjustment Procedure:


VOM
(dc range)
main board
TP (VREF)
IC802 ⑪
+
−

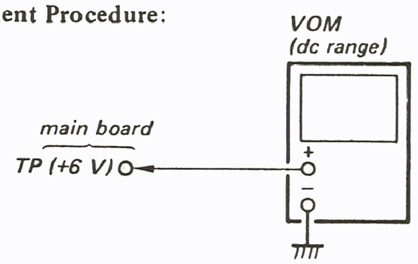
1. Apply dc +3.5 V to terminals for bult-in battery (BP-2).
2. Insert the disc (YEDS-18) and put the set into play mode.
3. Adjust RV801 so that main board IC802 ⑪ voltage and TP (VREF) voltage are equal.
4. If IC802 ⑪ voltage is heigher than TP (VREF) voltage when turning the RV801 fully counter-clockwise, short the jumper point Ⓐ as shown below and adjust RV801.

Adjustment Location: main board


battery
terminals
TP
(VREF)
IC802
RV801
RV402
Q419
Q412
(+3.4V)
(VREF)
TP
(VREF)
IC303
IC802⑪
(TEST)
R818
R819
IC802
R408
R409
Q406
R411
R410
Q405
RV801
C814
Q804
D405
C404
R412
R413
L402
V401
Ⓐ

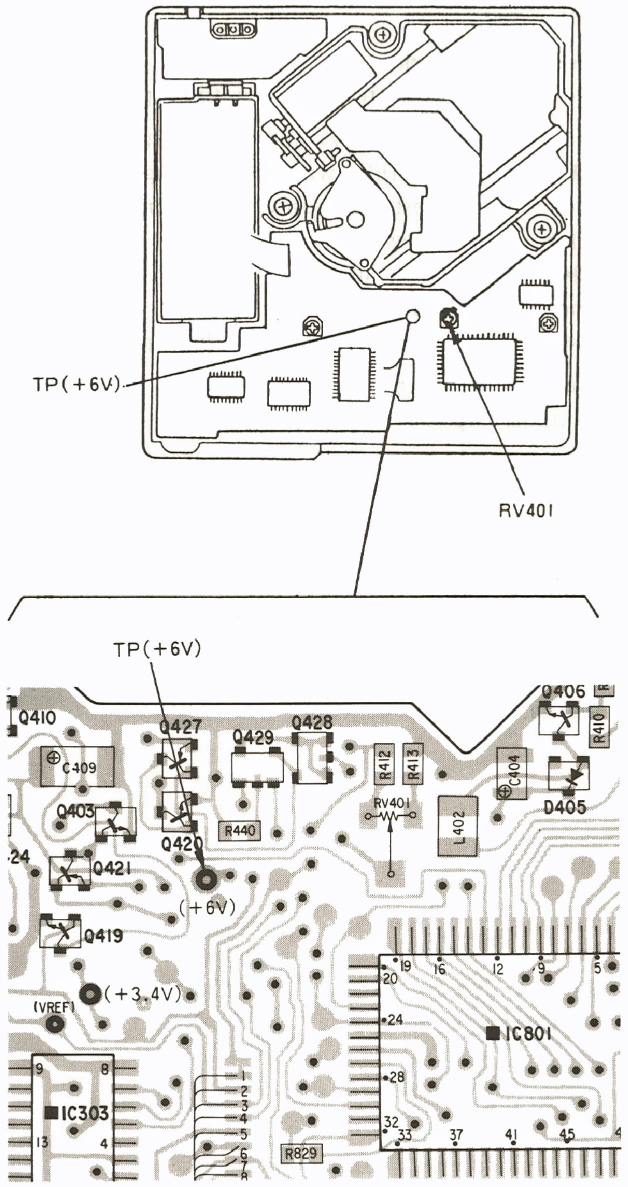
+6 V Adjustment

Adjustment Procedure:


VOM
(dc range)
main board
TP (+6 V)
+
−

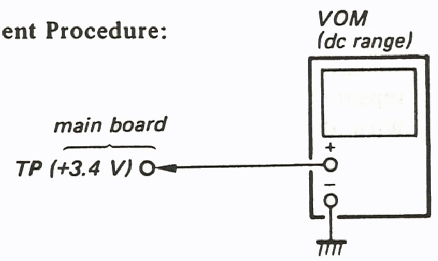
1. Put the set into service mode (see page 5).
2. Connect the VOM to main board TP (+6 V).
3. Adjust RV401 for +6 ±0.1 V reading on the VOM.
4. After adjustment, release service mode (see page 5).

Adjustment Location: main board


TP(+6V)
RV401
TP(+6V)
Q410
C409
Q427
Q429
Q428
R412
R413
RV401
Q406
C404
R410
D405
Q403
Q420
R440
L402
Q421
(+6V)
Q419
(+3.4V)
(VREF)
IC303
IC801
R829

+3.4 V Adjustment

Adjustment Procedure:


VOM
(dc range)
main board
TP (+3.4 V)
+
−

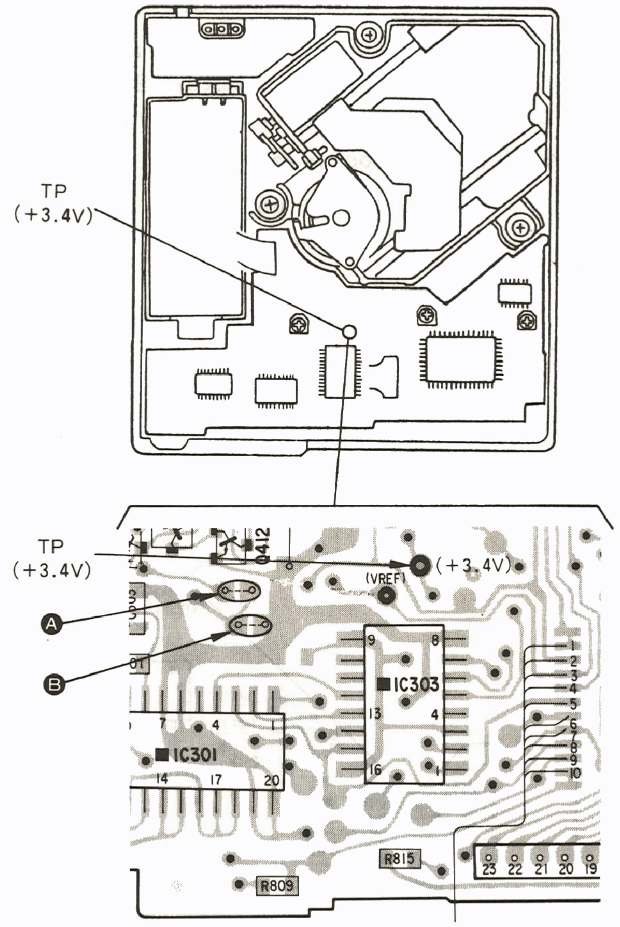
1. Put the set into service mode (see page 5).
2. Connect the VOM to main board test point TP (+3.4 V).
3. Adjust the pattern connecting (Ⓐ or Ⓑ) to obtain 3.4 to 3.55 V reading on the VOM.

pattern connection		VOM reading
Ⓐ	Ⓑ	
○	×	down
×	×	↑
×	○	↓
○	○	up

○: short ×: open

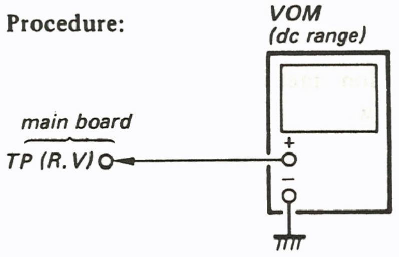
4. After adjustment, release service mode (see page 5).

Adjustment Location: main board


TP
(+3.4V)
TP
(+3.4V)
Ⓐ
Ⓑ
(+3.4V)
(VREF)
Q412
IC303
IC301
R815
R809

Rechargeable Voltage Adjustment

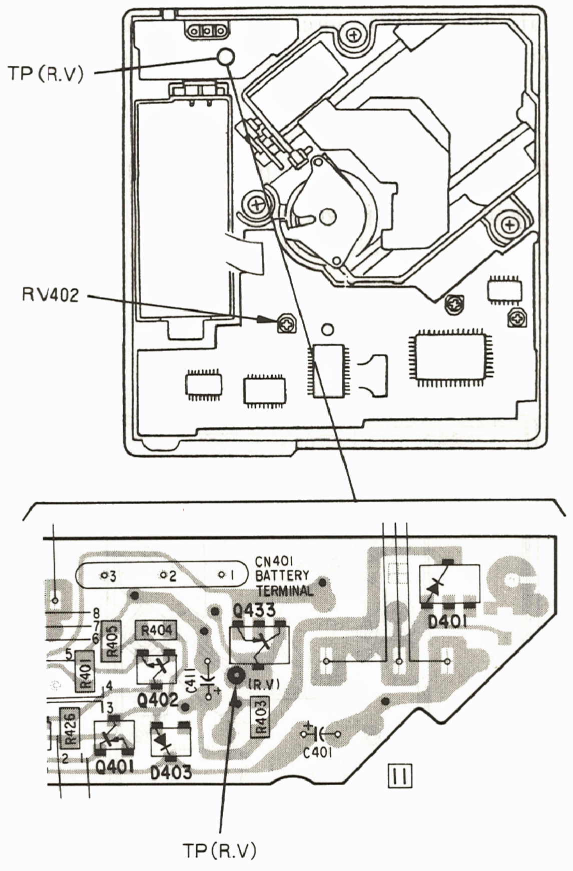
Adjustment Procedure:


VOM
(dc range)
main board
TP (R.V)
+
−

1. Connect the VOM to main board test point TP (R.V).
2. Apply DC 9 V with requrated dc power supply from external power jack CN401.
3. Adjust RV402 for 7.05 – 7.5 V reading on the VOM.

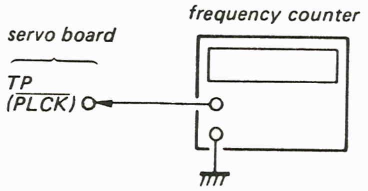
Note: Measure after the VOM reading becomes stable.

Adjustment Location: main board


TP (R.V)
RV402
CN401
BATTERY
TERMINAL
Q433
D401
R405
R404
R401
Q402
C411
(R.V)
R403
R426
Q401
D403
C401
TP(R.V)

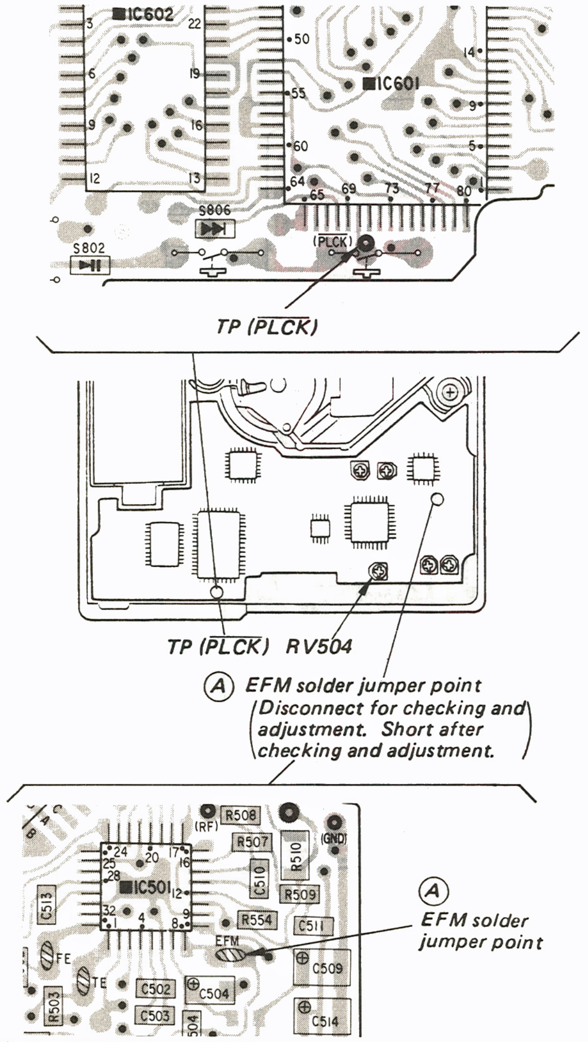
PLL Free Run Frequency Check and Adjustment

Check/Adjustment Procedure:


frequency counter
servo board
TP
(PLCK)

1. Disconnect the jumper point Ⓐ (EFM) in the diagram below.
2. Connect a frequency counter to servo board test point TP ($\overline{\text{PLCK}}$).
3. Put the set into service mode (see page 5).
4. Check that the frequency counter reading is 4.3218 ±0.01 MHz. If not, adjust RV504 so that it is 4.3218 ±0.01 MHz.
5. After adjustment, release service mode (see page 5).
6. Short the jumper point shorted in step 1.

Check/Adjustment Location: servo board

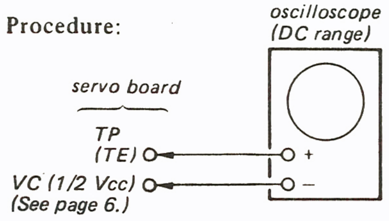

IC602
IC601
S806
S802
(PLCK)
TP ($\overline{\text{PLCK}}$)
TP ($\overline{\text{PLCK}}$) RV504
Ⓐ EFM solder jumper point
(Disconnect for checking and adjustment. Short after checking and adjustment.)
IC501
R508
R507
R510
R509
R554
C511
C509
C514
C502
C503
C504
C513
C510
R503
EFM
FE
TE
(RF)
(GND)
Ⓐ
EFM solder jumper point

Tracking Balance Adjustment

Conditions:

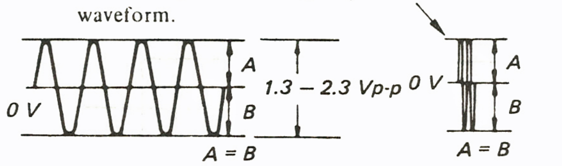
The set should be placed either horizontally.

Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP
(TE)
VC (1/2 Vcc)
(See page 6.)
+
–

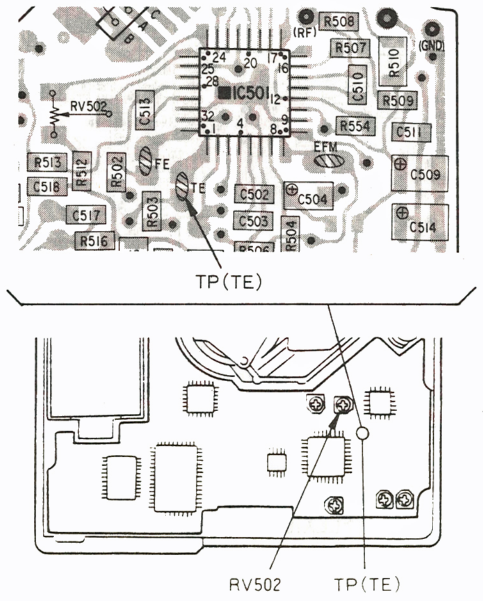
1. Connect the oscilloscope to servo board TP (TE).
2. Put the set into service mode (see page 5).
3. Press the ▶▶| and |◀◀ keys to move the UPF to the center.
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Adjust RV502 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0 V.

Note: Take sweep time as long as possible to obtain best waveform.



7. Unplug the external power supply to stop spindle motor from rotating.
8. After adjustment, release service mode (see page 5).

Adjustment Location: servo board

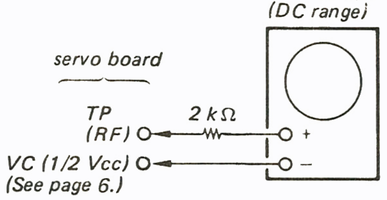

IC501
RV502
R508
R507
R510
R509
R554
C511
C509
C514
R513
C518
C517
R516
C513
C510
R512
R502
R503
C502
C503
C504
R504
EFM
FE
TE
(RF)
(GND)
TP(TE)
RV502
TP(TE)

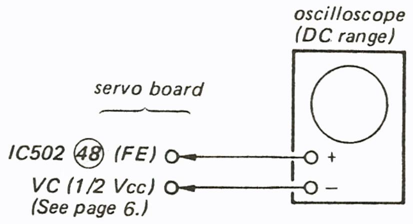
Focus Bias Adjustment

Conditions:

The set should be placed either horizontally.

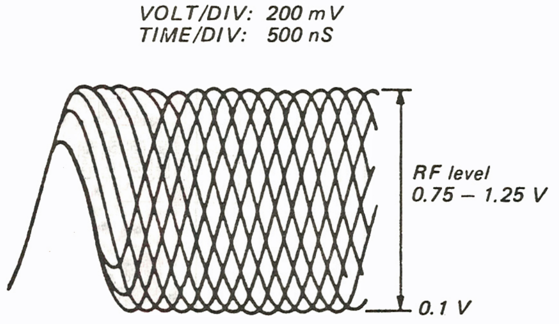
Adjustment Procedure:


oscilloscope
(DC range)
servo board
TP
(RF)
2 kΩ
VC (1/2 Vcc)
(See page 6.)
+
–


oscilloscope
(DC range)
servo board
IC502 ㊽ (FE)
VC (1/2 Vcc)
(See page 6.)
+
–

1. Put the set into service mode (see page 5).
2. Connect the oscilloscope to servo board test point TP (RF).
3. Press the ▶▶| and |◀◀ keys to move the UPF to the center. (Move the UPF to the music area on the disc to enable easy visibility of the eye pattern).
4. Insert the disc (YEDS-18) and close the top panel.
5. Press the ▶❚❚ key.
   (It will go from focus search to focus on, and CLV pull-in mode state. Tracking and sled are OFF.)
6. Press the KEY-MODE button. (Tracking and sled go ON.)
7. Adjust RV503 so that the oscilloscope waveform eye pattern is good. A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

- **RF Signal Reference Waveform (eye pattern)**



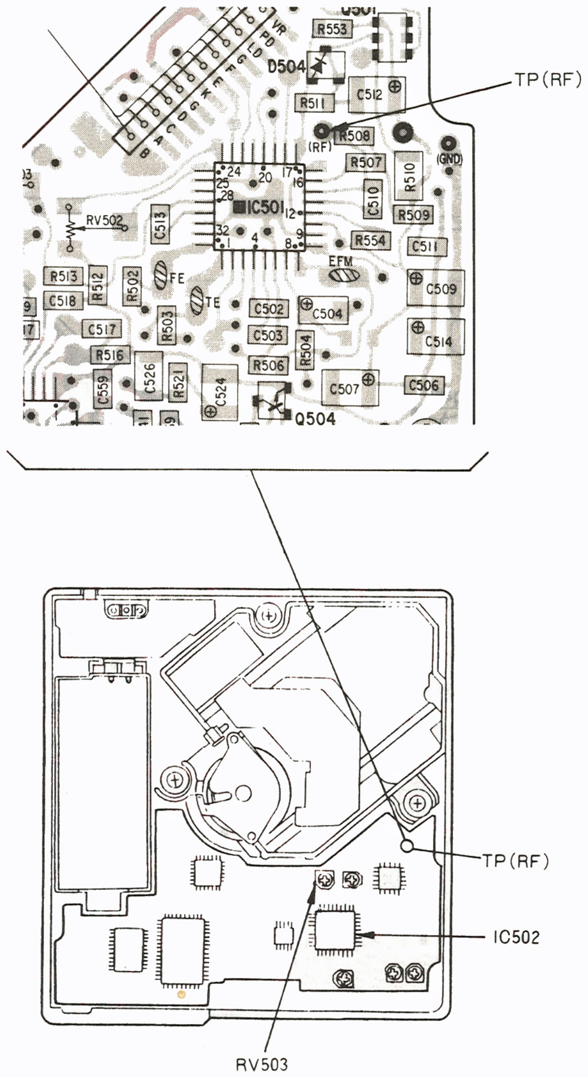
When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

8. Unplug the external power supply to stop spindle motor from rotating and remove the disc.
9. Remove the disc and connect the oscilloscope to main board IC502 ㊽ (FE).
10. Adjust RV503 again refering to the table followed.

oscilloscope reading	adjustment
more than +50 mV	Not adjust again.
+50 mV ~ +20 mV	Adjust RV503 again for +50 mV reading on oscilloscope.
+20 mV ~ –20 mV	Adjust RV503 again for –20 mV reading on oscilloscope.
less than –20 mV	Not adjust again.

11. After adjustment, release service mode (see page 5).

Adjustment Location: servo board


Q501
R553
D504
C512
R511
TP(RF)
(RF)
R508
(GND)
R507
R510
R509
R554
C511
IC501
RV502
C513
C510
R513
C518
R512
R502
C517
R516
R503
C502
C503
C504
R506
R504
C509
C514
C506
C507
C559
C526
R521
C524
Q504
EFM
FE
TE
TP(RF)
IC502
RV503

Reference

Focus/Tracking Gain Adjustment

A frequency responce analyzer or CD jig is necessary in order to perform this adjustment exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.
Focus/tracking gain determines the pick-up followup (vertical and horizontal) relative to mechanical noise and metchnical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment is to be performed when replacing the following parts:

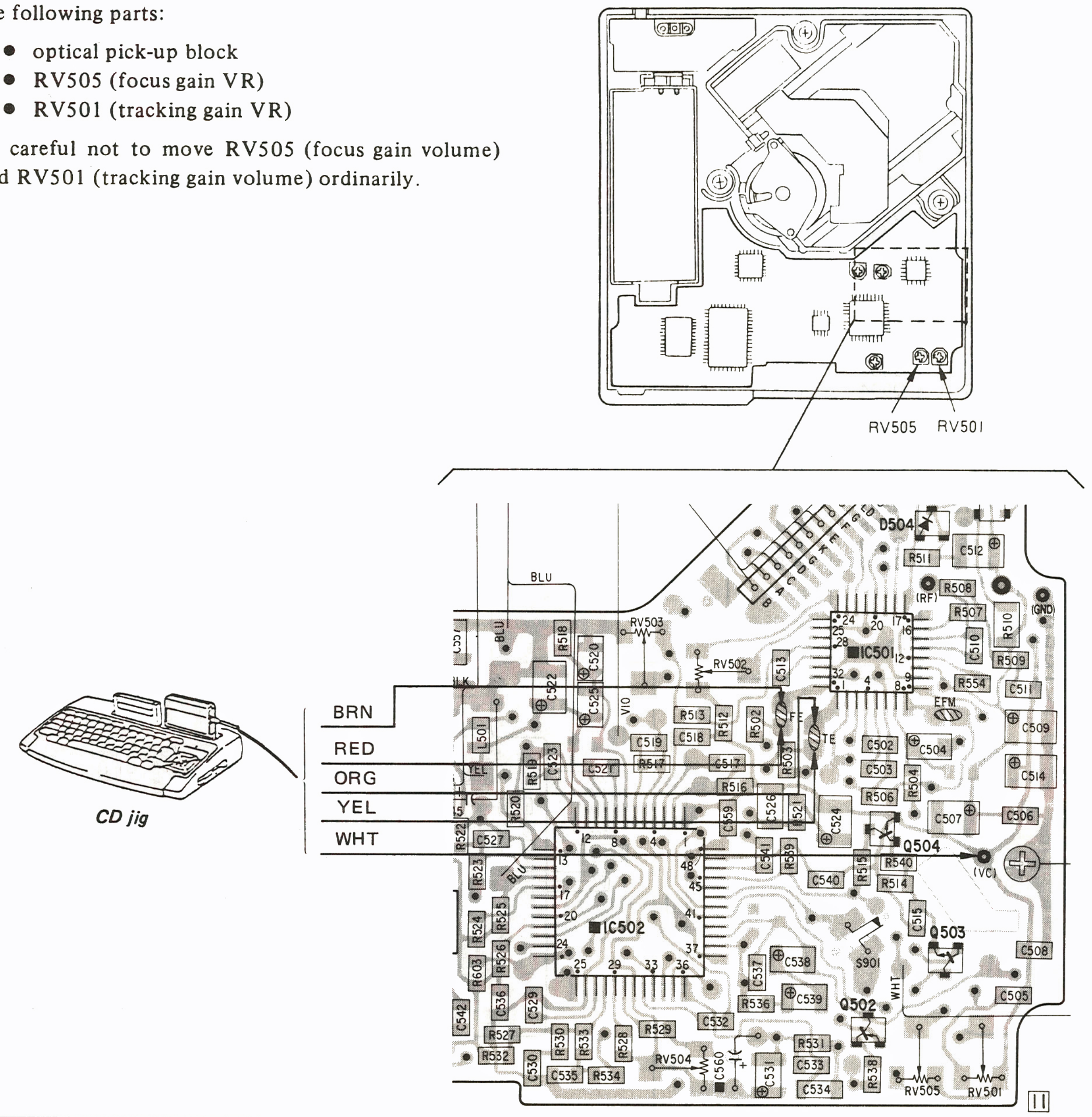
- optical pick-up block
- RV505 (focus gain VR)
- RV501 (tracking gain VR)

Be careful not to move RV505 (focus gain volume) and RV501 (tracking gain volume) ordinarily.

On this set, it is very difficult to simplify this adjustment. For those sets on which symptoms such as "occasional skipping" are hard to discover, or it is hard to tell if the set has been repaired, use the CD jig and perform this adjustment. Refer to the diagram below for connection of the CD jig. The adjustment procedure is described in the separate CD Jig Instruction Manual.

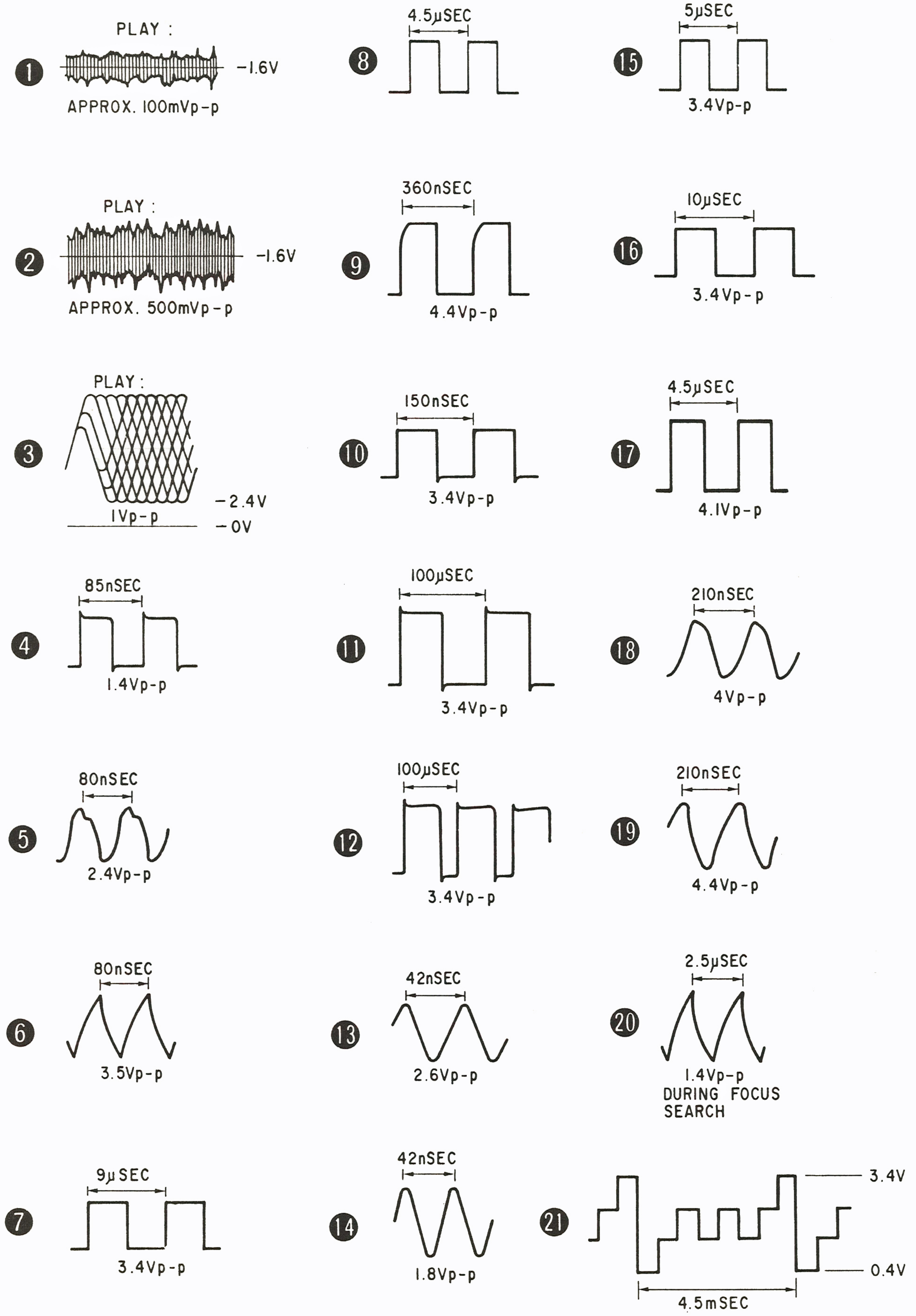
CD Jig Connecting Procedure:
Remove the solder jumpers at the TE and FE locations and connect the DC jig.
(Connect the points on both TE and FE located on the side of IC501 to the output to the CD jig, and points located on the side of volumes to the input from the CD jig.)

— servo board —


RV505
RV501
BRN
RED
ORG
YEL
WHT
CD jig
BLU
IC501
IC502
RV503
RV502
RV504
RV505
RV501
TE
FE
EFM
(RF)
(GND)
(VC)
D504
Q502
Q503
Q504
S901

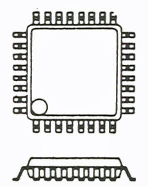
SECTION 4
DIAGRAMS

4-1. WAVEFORMS

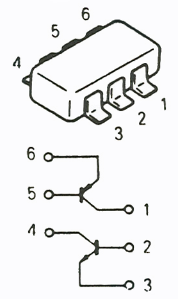

❶
PLAY :
−1.6V
APPROX. 100mVp-p
❷
PLAY :
−1.6V
APPROX. 500mVp-p
❸
PLAY :
−2.4V
−0V
1Vp-p
❹
85nSEC
1.4Vp-p
❺
80nSEC
2.4Vp-p
❻
80nSEC
3.5Vp-p
❼
9μSEC
3.4Vp-p
❽
4.5μSEC
❾
360nSEC
4.4Vp-p
❿
150nSEC
3.4Vp-p
⓫
100μSEC
3.4Vp-p
⓬
100μSEC
3.4Vp-p
⓭
42nSEC
2.6Vp-p
⓮
42nSEC
1.8Vp-p
⓯
5μSEC
3.4Vp-p
⓰
10μSEC
3.4Vp-p
⓱
4.5μSEC
4.1Vp-p
⓲
210nSEC
4Vp-p
⓳
210nSEC
4.4Vp-p
⓴
2.5μSEC
1.4Vp-p
DURING FOCUS SEARCH
㉑
3.4V
0.4V
4.5mSEC

4-2. SEMICONDUCTOR LEAD LAYOUTS

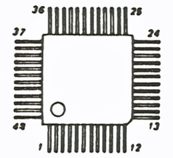
CXA1271Q



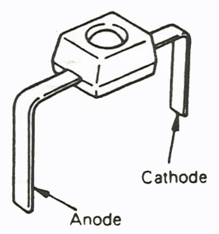
IMD2
XN4609


6
5
4
1
2
3
6
5
1
4
2
3

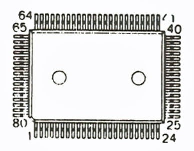
CXA1272Q-Z


36
25
37
24
48
13
1
12

SLM125YW

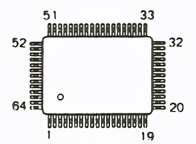

Cathode
Anode

CXD11250


64
41
65
40
80
25
1
24

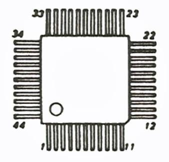
MARKING SIDE VIEW

CXP5086-047Q


51
33
52
32
64
20
1
19

TOP VIEW

MPC1715FU


33
23
34
22
44
12
1
11

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¹/₄W or less unless otherwise specified.
- % : indicates tolerance.
- ▬ : B+ Line
- ▭ : adjustment for repair.
- Voltages and waveforms and total current are measured with top panel closed.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground in service mode.
  no mark : stop
  ( ): play
- Voltages are taken with a VOM (input inpedance 1 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : CD
- Switch

Ref. No.	Switch	Position
S801	■	OFF
S802	▶/❚❚	OFF
S803	PLAY MODE	OFF
S804	REMAIN/ENTER	OFF
S805	KEY MODE	OFF
S806	▶▶❙	OFF
S807	❙◀◀	OFF
S808	HOLD	OFF
S901	DOOR	ON
S902	LIMIT	OFF

See page 5 for setup of service mode.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

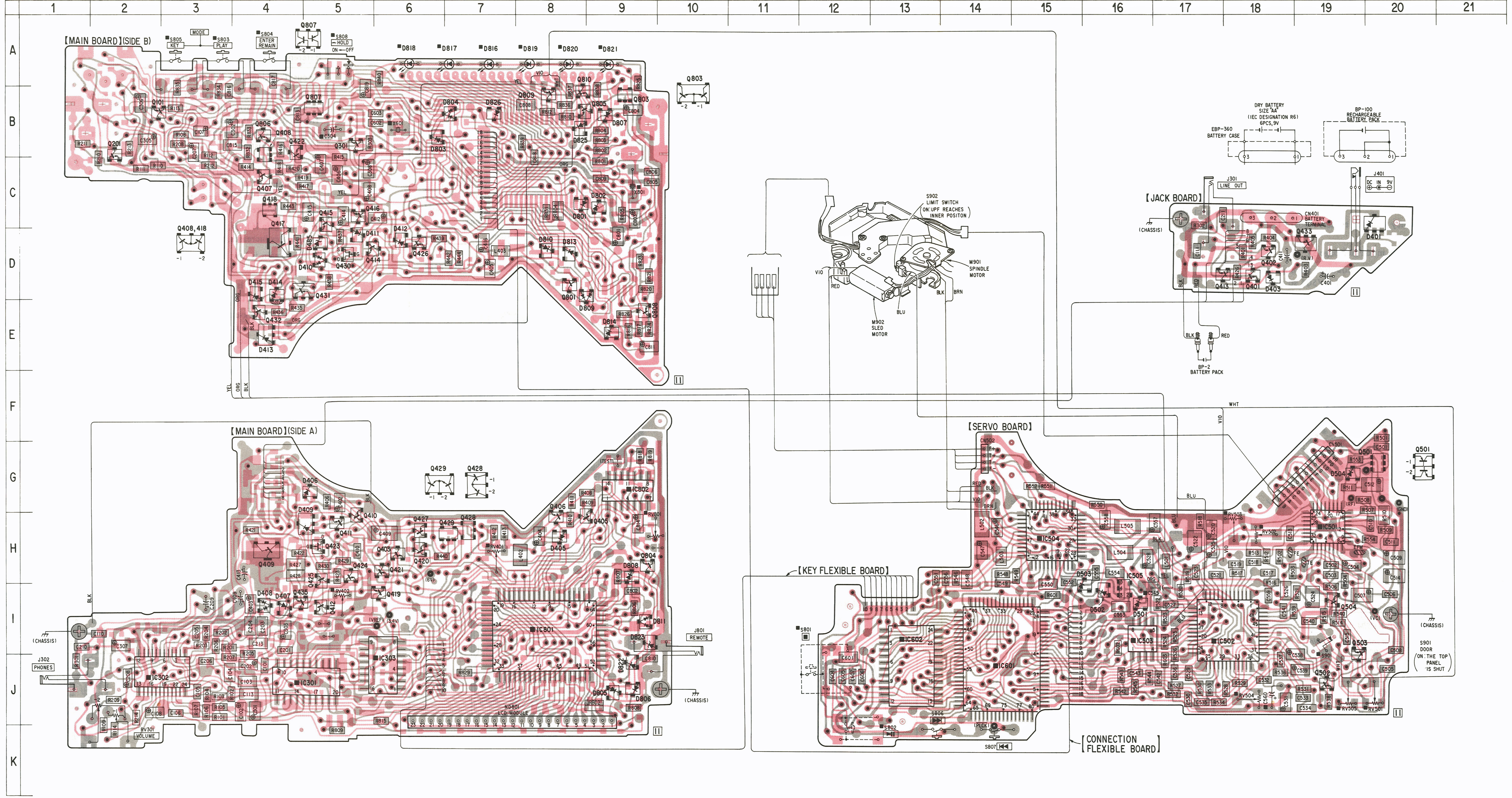
Note on Mounting Diagram:

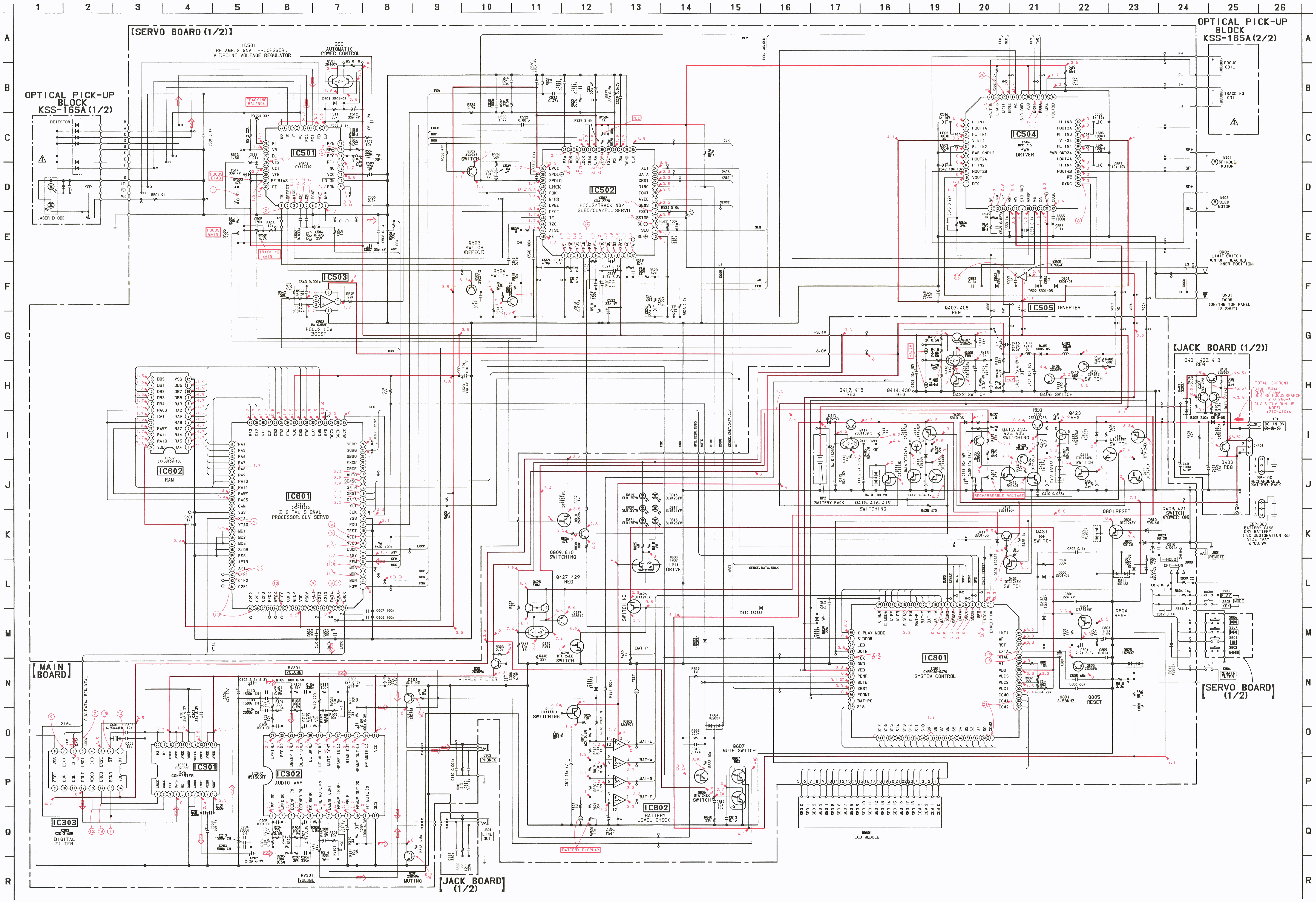
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.
- ○- - - : Components extracted from the rear side.

4-3. PRINTED WIRING BOARD

● Semiconductor Location

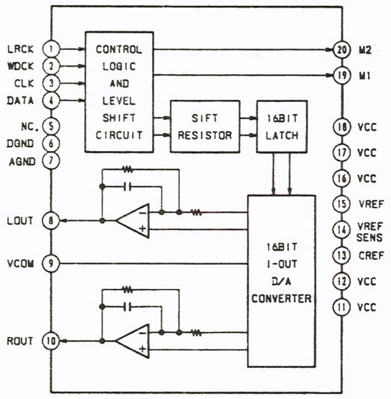
Ref. No.	Location	Ref. No.	Location
D401	D-20	Q101	B-2
D403	D-18	Q201	B-2
D405	H-8	Q301	B-5
D406	G-5	Q401	D-18
D407	I-4	Q402	D-18
D408	I-4	Q403	H-6
D409	G-5	Q405	H-9
D410	D-5	Q406	G-8
D411	D-5	Q407	C-4
D412	D-6	Q408	B-4
D413	E-4	Q409	H-4
D414	D-4	Q410	H-5
D415	D-4	Q411	H-5
D485	D-5	Q412	I-5
D501	I-16	Q413	D-18
D502	I-16	Q414	D-5
D503	H-16	Q415	C-5
D504	G-19	Q416	C-5
D801	C-8	Q417	C-4
D802	C-9	Q418	C-4
D803	B-6	Q419	I-6
D804	B-7	Q420	H-6
D805	J-9	Q421	H-6
D806	J-9	Q422	B-4
D807	B-9	Q423	H-5
D808	H-9	Q424	H-5
D809	E-8	Q425	H-5
D810	D-8	Q426	D-6
D811	I-9	Q427	H-6
D813	D-8	Q428	H-7
D814	E-9	Q429	H-7
D816	A-7	Q430	D-5
D817	A-7	Q431	D-5
D818	A-6	Q432	E-4
D819	A-8	Q433	D-19
D820	A-8	Q435	I-4
D821	A-9	Q501	G-20
D822	J-9	Q502	J-19
D823	I-9	Q503	I-19
D825	B-8	Q504	I-19
D826	B-7	Q801	D-8
		Q803	B-9
IC301	J-5	Q804	H-9
IC302	J-2	Q805	B-9
IC303	J-6	Q806	B-4
IC501	H-19	Q807	B-5
IC502	I-18	Q808	E-9
IC503	I-16	Q809	B-8
IC504	H-15	Q810	A-8
IC505	H-16		
IC601	J-14		
IC602	I-13		
IC801	I-8		
IC802	G-9		


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
[MAIN BOARD] (SIDE B)
S805 KEY MODE
S803 PLAY
S804 ENTER REMAIN
Q807
S808 HOLD ON↔OFF
Q803
Q408, 418
[MAIN BOARD] (SIDE A)
Q429
Q428
J301 REMOTE
J302 PHONES
(CHASSIS)
IC301
IC302
IC303
IC801
RV301 VOLUME
S902 LIMIT SWITCH (ON:UPF REACHES INNER POSITON)
M901 SPINDLE MOTOR
M902 SLED MOTOR
V10
RED
BLU
BLK
BRN
WHT
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 6PCS, 9V
EBP-360 BATTERY CASE
BP-100 RECHARGEABLE BATTERY PACK
J301 LINE OUT
J401 DC IN 9V
[JACK BOARD]
CN401 BATTERY TERMINAL
BP-2 BATTERY PACK
[SERVO BOARD]
Q501
IC501
IC502
IC503
IC504
IC505
IC601
IC602
[KEY FLEXIBLE BOARD]
S801
S901 DOOR (ON: THE TOP PANEL IS SHUT)
S807
[CONNECTION FLEXIBLE BOARD]


[SERVO BOARD (1/2)]
OPTICAL PICK-UP BLOCK KSS-165A (1/2)
OPTICAL PICK-UP BLOCK KSS-165A (2/2)
IC501 RF AMP, SIGNAL PROCESSOR, MIDPOINT VOLTAGE REGULATOR
Q501 AUTOMATIC POWER CONTROL
IC501
IC502
IC502 CXA1272Q FOCUS/TRACKING/ SLED/CLV/PLL SERVO
IC503
IC503 BA10358F FOCUS LOW BOOST
IC504
IC504 μPC1715 PWM DRIVER
IC505 INVERTER
Q503 SWITCH (DEFECT)
Q504 SWITCH
Q502 SWITCH
TRACKING BALANCE
FOCUS BIAS
FOCUS GAIN
TRACKING GAIN
DETECTOR
LASER DIODE
FOCUS COIL
TRACKING COIL
M901 SPINDLE MOTOR
M902 SLED MOTOR
S902 LIMIT SWITCH (ON:UPF REACHES INNER POSITION)
S901 DOOR (ON:THE TOP PANEL IS SHUT)
IC602
IC602 CXK5816M-10L RAM
IC601
IC601 CXD-1125Q DIGITAL SIGNAL PROCESSOR, CLV SERVO
[JACK BOARD (1/2)]
Q401, 402, 413 REG
Q407, 408 REG
Q417, 418 REG
Q414, 430 REG
Q422 SWITCH
Q406 SWITCH
Q405 SWITCH
Q423 REG
Q412, 424, 425, 435 SWITCHING
Q415, 416, 419 SWITCHING
Q410 SWITCH
Q411 SWITCH
Q433 REG
Q403, 421 SWITCH (POWER ON)
BP2 BATTERY PACK
BP-100 RECHARGEABLE BATTERY PACK
EBP-360 BATTERY CASE DRY BATTERY (IEC DESIGNATION R6) SIZE "AA" 6PCS, 9V
DC IN 9V
RECHARGEABLE VOLTAGE
TOTAL CURRENT
Q801 RESET
Q431 B+ SWITCH
Q432 SWITCH
Q804 RESET
Q805 RESET
Q809, 810 SWITCHING
Q427-429 REG
Q420 SWITCH
D803 LED DRIVE
[MAIN BOARD]
IC801
IC801 CXP5086-047Q SYSTEM CONTROL
IC802
IC802 BATTERY LEVEL CHECK
Q808 SWITCHING
Q806 SWITCH
Q807 MUTE SWITCH
BATTERY DISPLAY
ND801 LCD MODULE
X801 3.58MHZ
HOLD
REMOTE
PLAY
MODE
KEY
REMAIN
ENTER
[SERVO BOARD (1/2)]
IC301
IC301 PCM-66P D/A CONVERTER
IC302
IC302 M5156FP AUDIO AMP
IC303
IC303 CXD1316M DIGITAL FILTER
RV301 VOLUME
Q101 MUTING
Q201 MUTING
Q301 RIPPLE FILTER
J302 PHONES
J301 LINE OUT
[JACK BOARD (1/2)]
XTAL

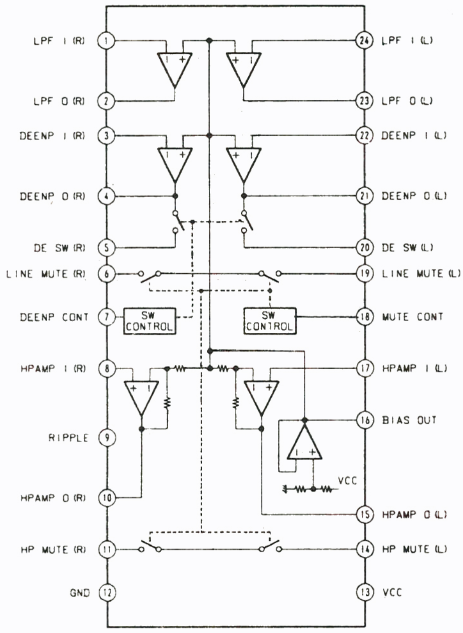
4-5. IC BLOCK DIAGRAM

IC 301
PCM-66



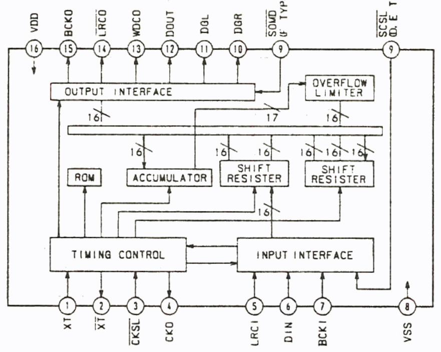
LRCK 1
WDCK 2
CLK 3
DATA 4
NC. 5
DGND 6
AGND 7
LOUT 8
VCOM 9
ROUT 10
CONTROL LOGIC AND LEVEL SHIFT CIRCUIT
SIFT RESISTOR
16BIT LATCH
16BIT I-OUT D/A CONVERTER
20 M2
19 M1
18 VCC
17 VCC
16 VCC
15 VREF
14 VREF SENS
13 CREF
12 VCC
11 VCC

IC302
M51568FP



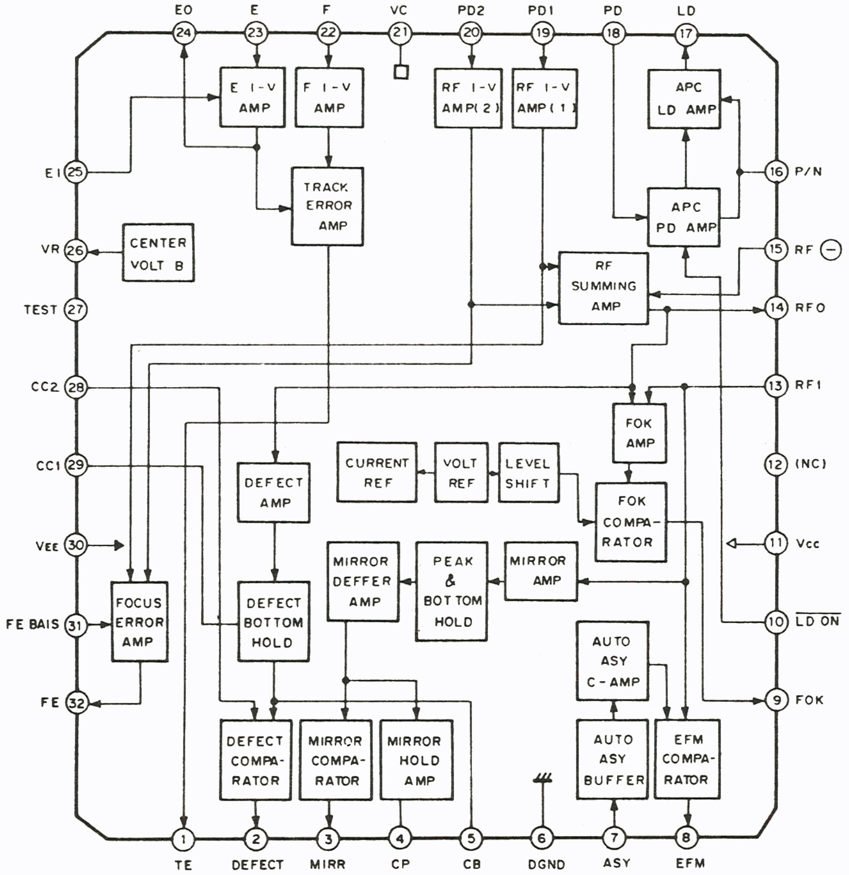
LPF I (R) 1
LPF O (R) 2
DEENP I (R) 3
DEENP O (R) 4
DE SW (R) 5
LINE MUTE (R) 6
DEENP CONT 7
HPAMP I (R) 8
RIPPLE 9
HPAMP O (R) 10
HP MUTE (R) 11
GND 12
SW CONTROL
SW CONTROL
VCC
24 LPF I (L)
23 LPF O (L)
22 DEENP I (L)
21 DEENP O (L)
20 DE SW (L)
19 LINE MUTE (L)
18 MUTE CONT
17 HPAMP I (L)
16 BIAS OUT
15 HPAMP O (L)
14 HP MUTE (L)
13 VCC

IC303
CXD1316DM



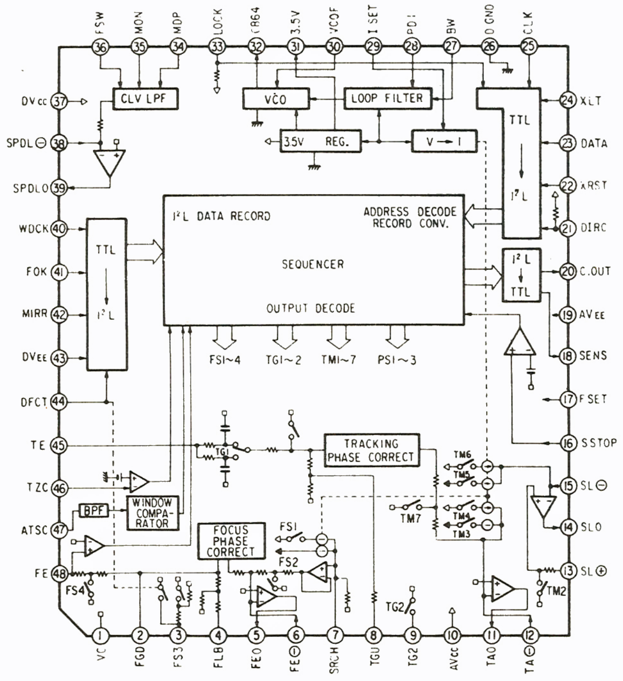
VDD 16
BCKO 15
LRCO 14
WDCO 13
DOUT 12
DOL 11
DOR 10
SDMO (P TYPE) 9
SCSL (LE TYPE) 9
OUTPUT INTERFACE
OVERFLOW LIMITER
ROM
ACCUMULATOR
SHIFT RESISTER
SHIFT RESISTER
TIMING CONTROL
INPUT INTERFACE
16
17
XT 1
XT 2
CKSL 3
CKO 4
LRCI 5
DIN 6
BCKI 7
VSS 8

IC501
CXA1271Q



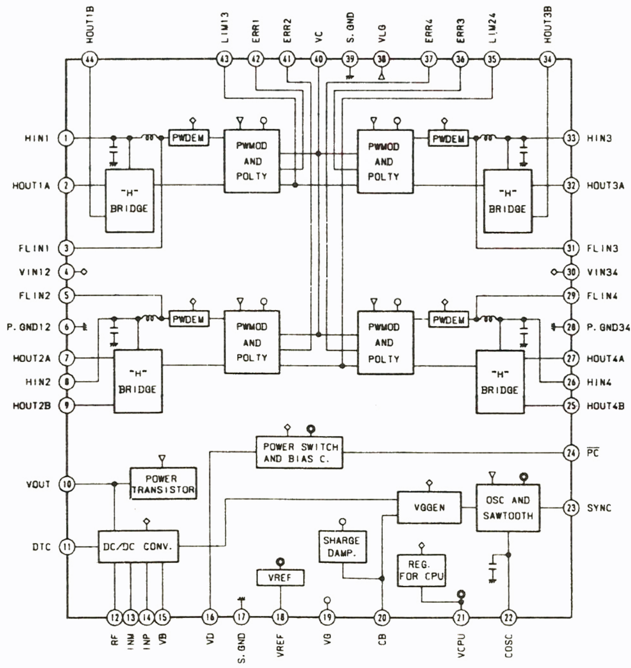
EO 24
E 23
F 22
VC 21
PD2 20
PD1 19
PD 18
LD 17
E I-V AMP
F I-V AMP
RF I-V AMP(2)
RF I-V AMP(1)
APC LD AMP
TRACK ERROR AMP
APC PD AMP
CENTER VOLT B
RF SUMMING AMP
FOK AMP
CURRENT REF
VOLT REF
LEVEL SHIFT
FOK COMPA-RATOR
DEFECT AMP
MIRROR DEFFER AMP
PEAK & BOTTOM HOLD
MIRROR AMP
FOCUS ERROR AMP
DEFECT BOTTOM HOLD
AUTO ASY C-AMP
DEFECT COMPA-RATOR
MIRROR COMPA-RATOR
MIRROR HOLD AMP
AUTO ASY BUFFER
EFM COMPA-RATOR
E I 25
VR 26
TEST 27
CC2 28
CC1 29
VEE 30
FE BAIS 31
FE 32
16 P/N
15 RF
14 RFO
13 RF1
12 (NC)
11 Vcc
10 LD ON
9 FOK
TE 1
DEFECT 2
MIRR 3
CP 4
CB 5
DGND 6
ASY 7
EFM 8

IC502
CXA1272Q



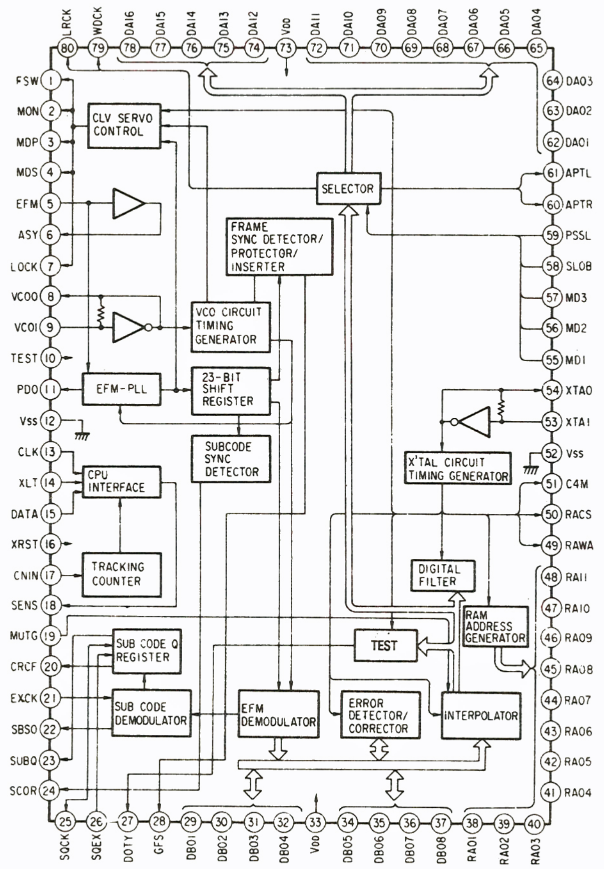
FSW 36
MON 35
MDP 34
LOCK 33
FR64 32
3.5V 31
VCOF 30
I SET 29
PD1 28
BW 27
D GND 26
CLK 25
DVcc 37
SPDL 38
SPDLO 39
WDCK 40
FOK 41
MIRR 42
DVEE 43
DFCT 44
TE 45
TZC 46
ATSC 47
FE 48
CLV LPF
VCO
LOOP FILTER
3.5V REG.
V→I
TTL
I²L
I²L DATA RECORD
ADDRESS DECODE RECORD CONV.
SEQUENCER
OUTPUT DECODE
FSI~4
TGI~2
TMI~7
PSI~3
TRACKING PHASE CORRECT
WINDOW COMPA-RATOR
BPF
FOCUS PHASE CORRECT
FS1
FS2
FS3
FS4
TG1
TG2
TM1
TM2
TM3
TM4
TM5
TM6
TM7
24 XLT
23 DATA
22 XRST
21 DIRC
20 C.OUT
19 AVEE
18 SENS
17 F SET
16 SSTOP
15 SL
14 SLO
13 SL
VC 1
FGD 2
FS3 3
FLB 4
FEO 5
FE 6
SRCH 7
TGU 8
TG2 9
AVcc 10
TAO 11
TA 12

IC504
MPC1715



HOUT1B 44
LIMI13 43
ERR1 42
ERR2 41
VC 40
S.GND 39
VLG 38
ERR4 37
ERR3 36
LIM24 35
HOUT3B 34
HIN1 1
HOUT1A 2
FLIN1 3
VIN12 4
FLIN2 5
P.GND12 6
HOUT2A 7
HIN2 8
HOUT2B 9
VOUT 10
DTC 11
PWDEM
PWMOD AND POLTY
"H" BRIDGE
POWER SWITCH AND BIAS C.
POWER TRANSISTOR
VGGEN
OSC AND SAWTOOTH
SHARGE DAMP.
VREF
REG. FOR CPU
DC/DC CONV.
33 HIN3
32 HOUT3A
31 FLIN3
30 VIN34
29 FLIN4
28 P.GND34
27 HOUT4A
26 HIN4
25 HOUT4B
24 PC
23 SYNC
RF 12
INM 13
INP 14
VB 15
VD 16
S.GND 17
VREF 18
VG 19
CB 20
VCPU 21
COSC 22

IC601
CXD1125Q



LRCK 80
WDCK 79
DA16 78
DA15 77
DA14 76
DA13 75
DA12 74
VDD 73
DA11 72
DA10 71
DA09 70
DA08 69
DA07 68
DA06 67
DA05 66
DA04 65
FSW 1
MON 2
MDP 3
MDS 4
EFM 5
ASY 6
LOCK 7
VCOO 8
VCOI 9
TEST 10
PDO 11
Vss 12
CLK 13
XLT 14
DATA 15
XRST 16
CNIN 17
SENS 18
MUTG 19
CRCF 20
EXCK 21
SBSO 22
SUBQ 23
SCOR 24
CLV SERVO CONTROL
SELECTOR
FRAME SYNC DETECTOR/ PROTECTOR/ INSERTER
VCO CIRCUIT TIMING GENERATOR
EFM-PLL
23-BIT SHIFT REGISTER
SUBCODE SYNC DETECTOR
CPU INTERFACE
X'TAL CIRCUIT TIMING GENERATOR
TRACKING COUNTER
DIGITAL FILTER
RAM ADDRESS GENERATOR
TEST
SUB CODE Q REGISTER
SUB CODE DEMODULATOR
EFM DEMODULATOR
ERROR DETECTOR/ CORRECTOR
INTERPOLATOR
64 DA03
63 DA02
62 DA01
61 APTL
60 APTR
59 PSSL
58 SLOB
57 MD3
56 MD2
55 MD1
54 XTAO
53 XTAI
52 Vss
51 C4M
50 RACS
49 RAWA
48 RAI1
47 RAI0
46 RA09
45 RA08
44 RA07
43 RA06
42 RA05
41 RA04
SQCK 25
SQEX 26
DOTY 27
GFS 28
DB01 29
DB02 30
DB03 31
DB04 32
VDD 33
DB05 34
DB06 35
DB07 36
DB08 37
RA01 38
RA02 39
RA03 40

SECTION 5

EXPLODED VIEWS

NOTE:

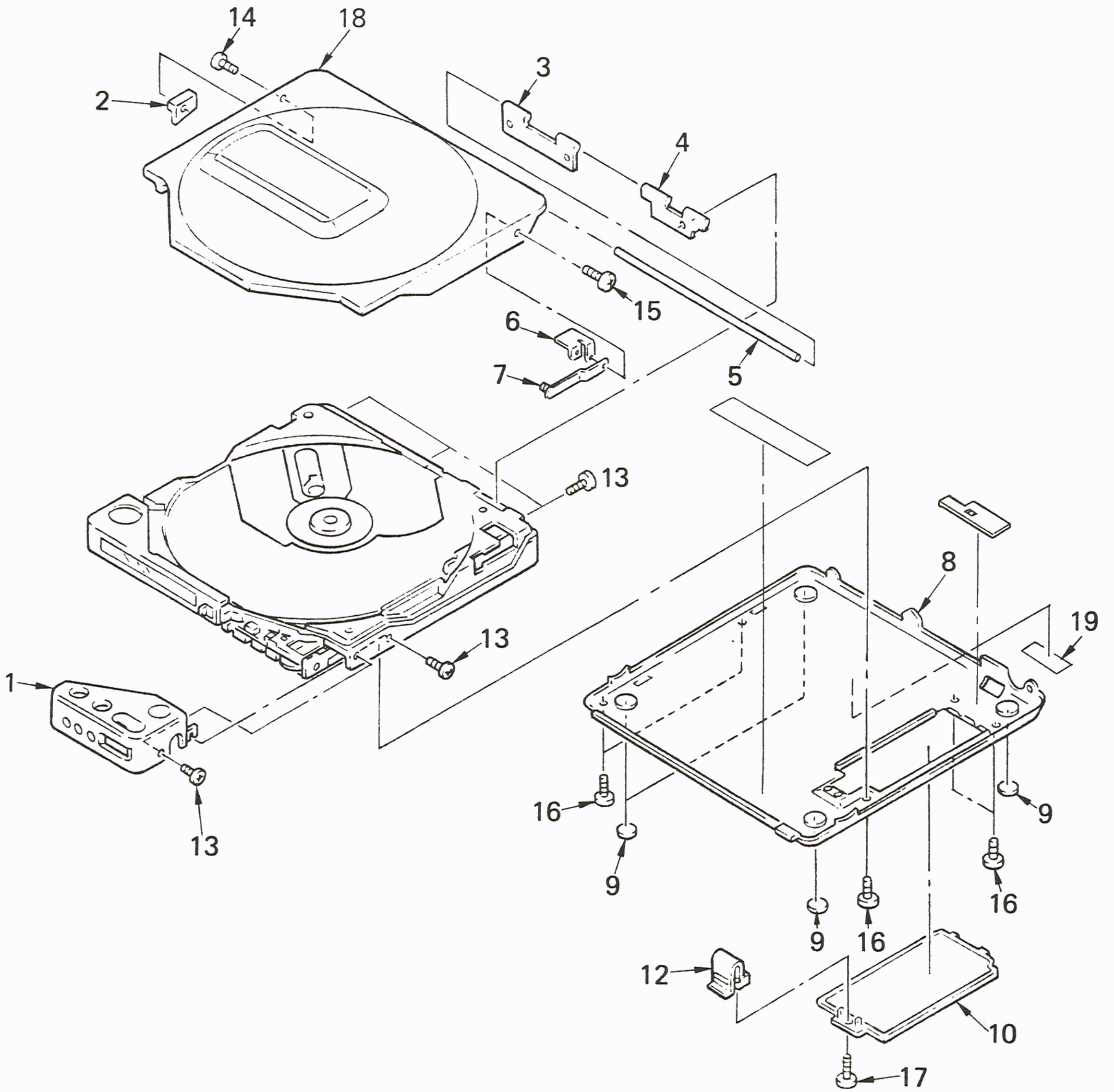
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:

(RED) . . . KNOB, BALANCE (WHITE)
↑ ↑
Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

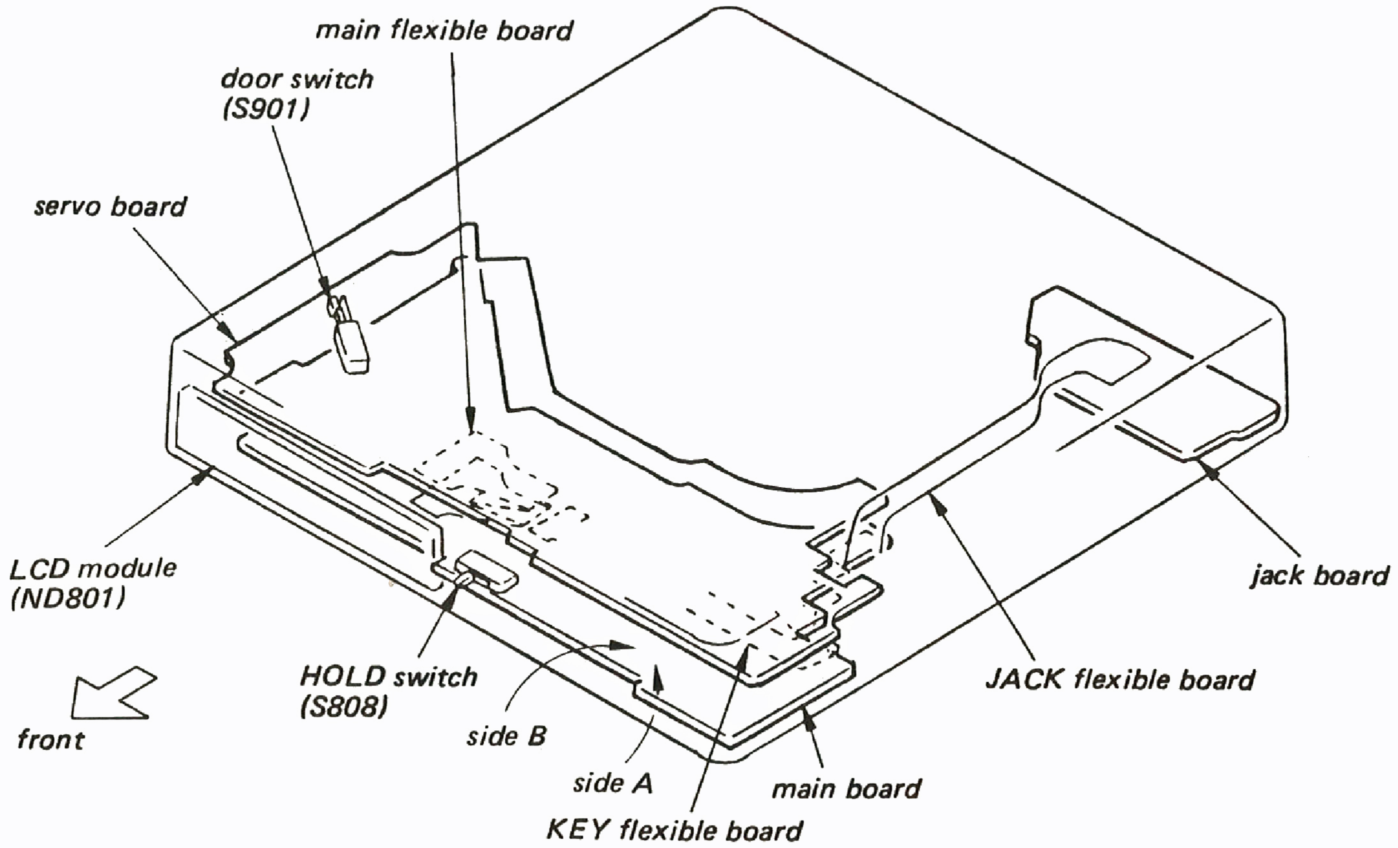
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

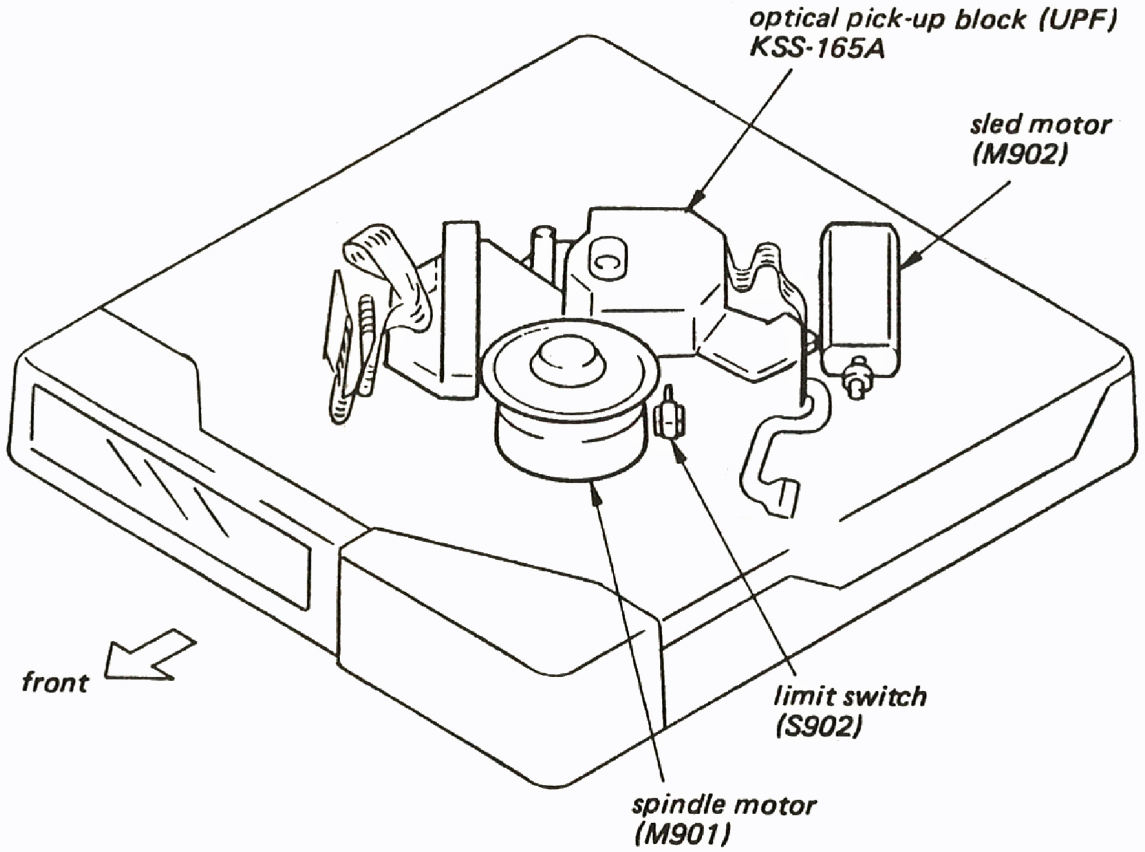
5-1.



No.	Part No.	Description	Remarks
1	X-4921-211-1	(BLACK)...ORNAMENT ASSY (BLACK), BUTTON	
	X-4921-235-1	(TITAN)...ORNAMENT ASSY (TITAN), BUTTON	
2	4-920-272-01	RETAINER, SPRING, SWITCHING	
3	4-924-142-01	(BLACK)...HINGE (LEFT)	
	4-924-142-11	(TITAN)...HINGE (LEFT)	
4	4-924-143-01	(BLACK)...HINGE (RIGHT)	
	4-924-143-11	(TITAN)...HINGE (RIGHT)	
5	4-924-144-01	SHAFT, FULCRUM	
6	X-4917-704-1	BRACKET ASSY, SWITCHING PLATE	
7	X-4921-216-1	PLATE (B) ASSY, SWITCHING	
8	X-4921-231-1	(BLACK)...PANEL ASSY, BOTTOM	9
	X-4921-237-1	(TITAN)...PANEL ASSY (TITAN), BOTTOM	9
9	4-912-641-01	FOOT, RUBBER	
10	4-924-164-01	(BLACK)...LID, BATTERY CASE	
	4-924-164-21	(TITAN)...LID, BATTERY CASE	
12	4-924-165-01	CHIP, LOCK, BATTERY CASE LID	
13	3-703-816-71	(TITAN)...SCREW (M1.4X3.0), SPECIAL HEAD	
	3-703-816-72	(BLACK)...SCREW (M1.4X3.0), SPECIAL HEAD	
14	3-895-823-41	(BLACK)...SCREW (B1.4X4), TAPPING	
	3-895-823-51	(TITAN)...SCREW (B1.4X4), TAPPING	
15	3-703-816-01	(TITAN)...SCREW (M1.4X2.0), SPECIAL HEAD	
	3-703-816-02	(BLACK)...SCREW (M1.4X2.0), SPECIAL HEAD	
16	3-703-816-41	(TITAN)...SCREW (M1.4X2.5), SPECIAL HEAD	
	3-703-816-42	(BLACK)...SCREW (M1.4X2.5), SPECIAL HEAD	
17	3-318-203-71	(BLACK)...SCREW (B1.7X5), TAPPING	
	3-318-203-72	(TITAN)...SCREW (B1.7X5), TAPPING	
18	A-3043-233-A	(BLACK)...PANEL, UPPER	
	A-3043-238-A	(TITAN)...PANEL, UPPER	
19	4-885-838-00	(AEP,UK)...LABEL, CLASS 1	

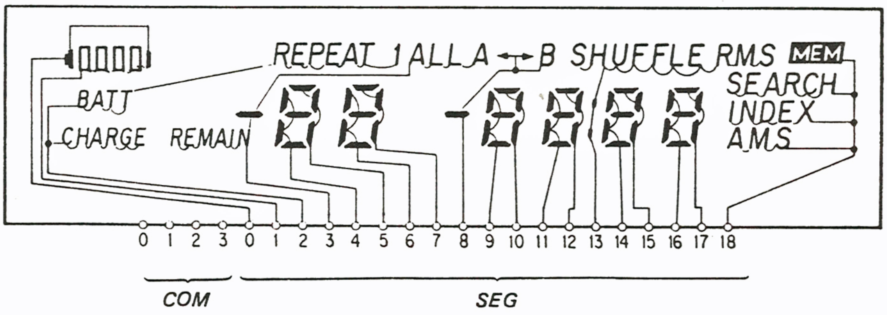
- **PC Board/Switch/Motor Layouts**


main flexible board
door switch
(S901)
servo board
LCD module
(ND801)
front
HOLD switch
(S808)
side B
side A
KEY flexible board
main board
JACK flexible board
jack board

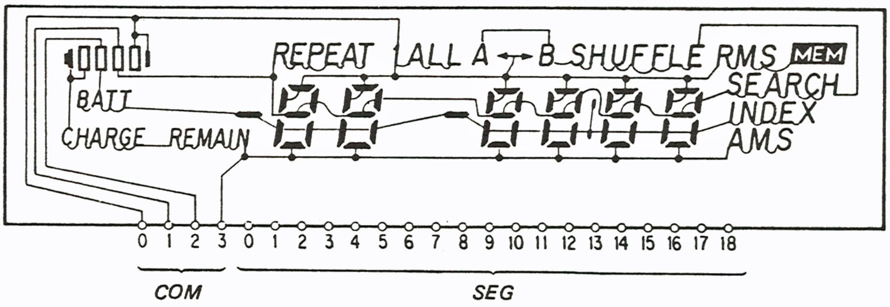

optical pick-up block (UPF)
KSS-165A
sled motor
(M902)
front
limit switch
(S902)
spindle motor
(M901)

- **LCD Module**

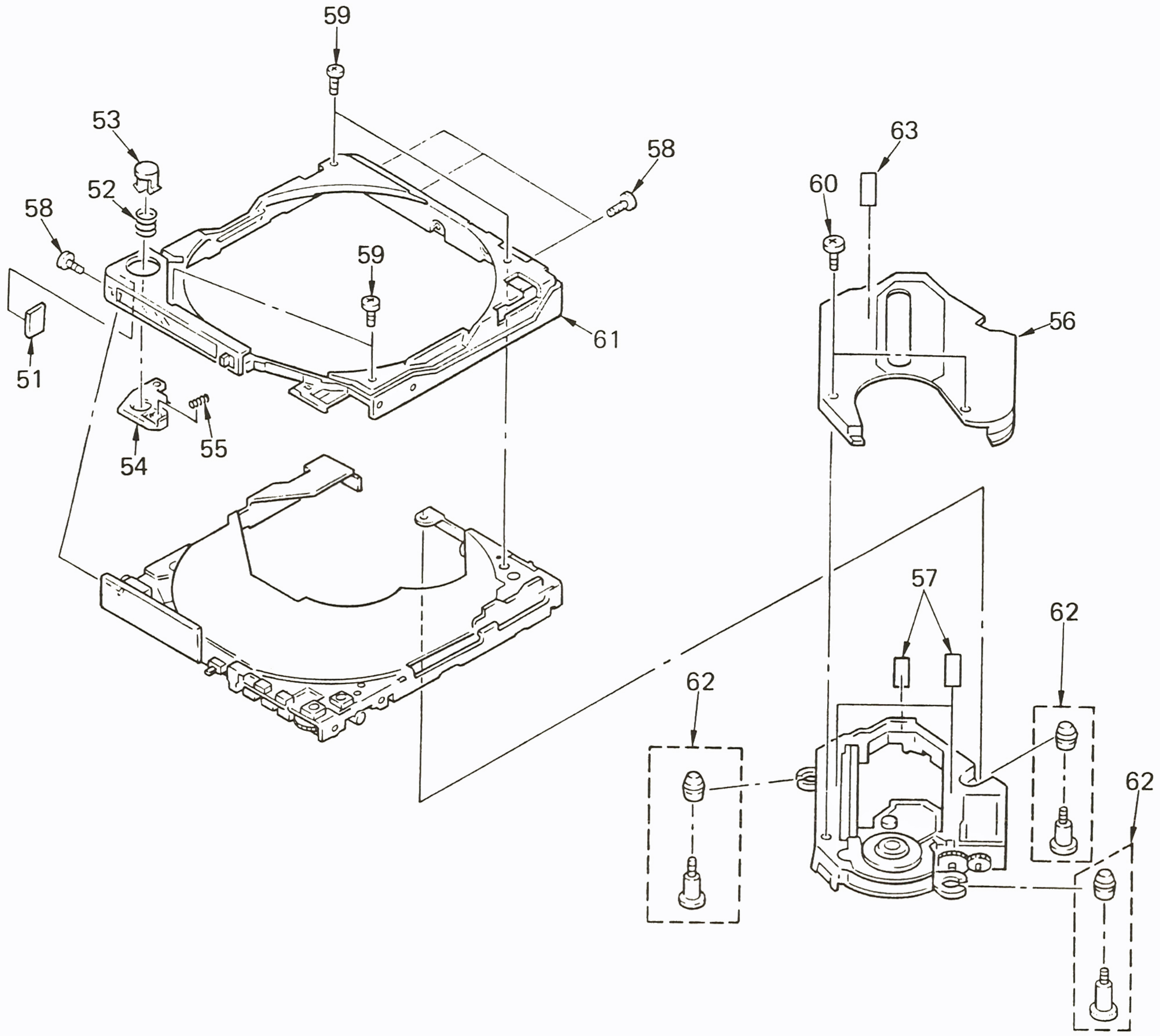
SEGMENT


REPEAT 1 ALL A ↔ B SHUFFLE RMS MEM
SEARCH
INDEX
AMS
BATT
CHARGE
REMAIN
0 1 2 3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
COM
SEG

COMMON

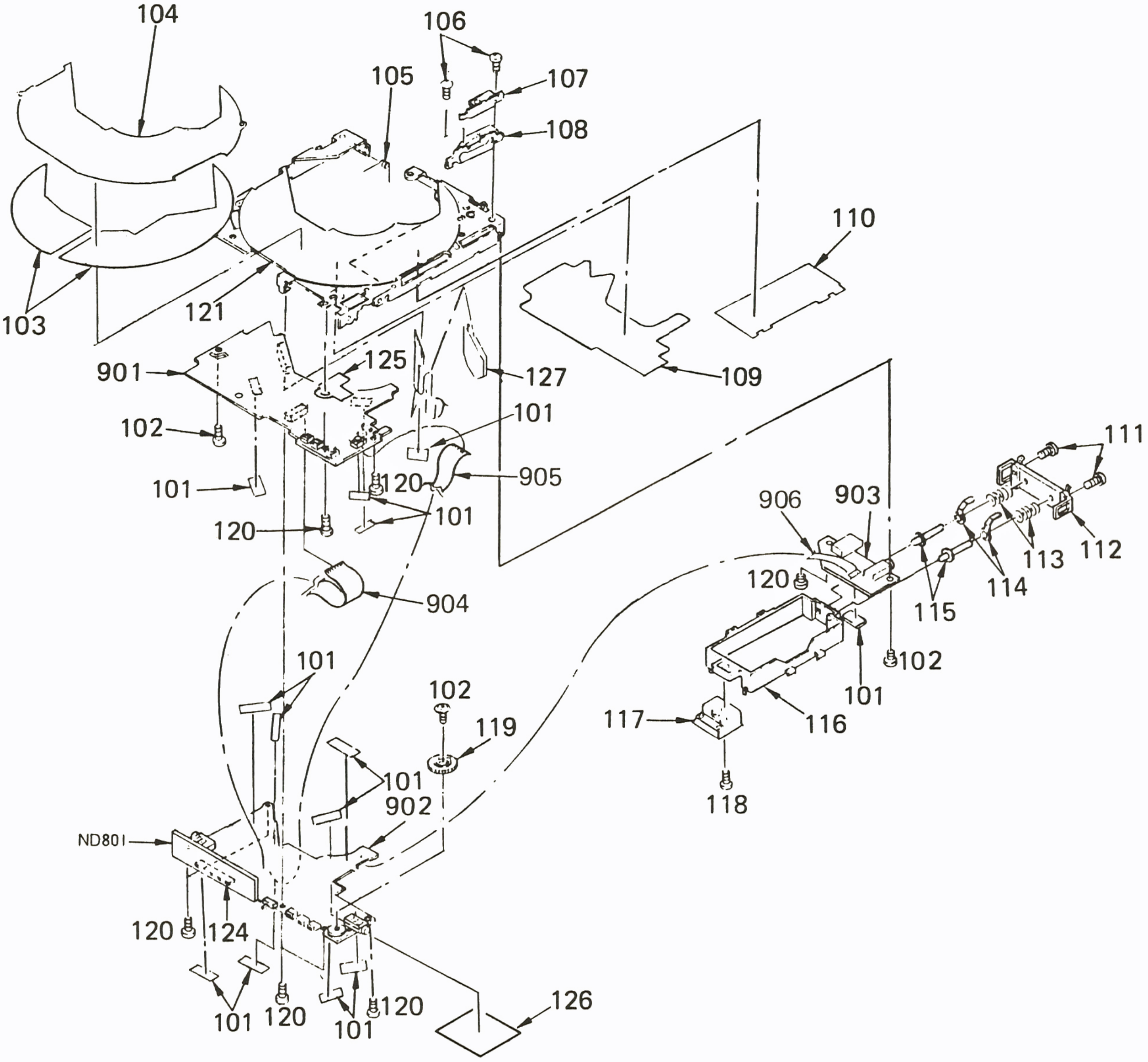

REPEAT 1 ALL A ↔ B SHUFFLE RMS MEM
SEARCH
INDEX
AMS
BATT
CHARGE
REMAIN
0 1 2 3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
COM
SEG

5-2.



No.	Part No.	Description	Remarks
51	9-911-840-XX	CUSHION, LID	
52	4-917-727-01	SPRING, COMPRESSION	
53	4-924-130-01	(BLACK)...BUTTON, OPEN	
	4-924-130-21	(TITAN)...BUTTON, OPEN	
54	4-924-131-01	LEVER, LOCK	
55	4-924-140-01	SPRING, COMPRESSION	
56	4-926-141-01	COVER, MD	
57	3-831-441-XX	CUSHION	
58	3-703-816-71	(TITAN)...SCREW (M1.4X3.0), SPECIAL HEAD	
	3-703-816-72	(BLACK)...SCREW (M1.4X3.0), SPECIAL HEAD	
59	3-703-816-21	(BLACK)...SCREW (M1.4X5.0), SPECIAL HEAD	
	3-703-816-22	(TITAN)...SCREW (M1.4X5.0), SPECIAL HEAD	
60	3-895-823-11	SCREW (B1.4X3), TAPPING	
61	X-4921-217-1	(BLACK)...CABINET ASSY	
	X-4921-238-1	(TITAN)...CABINET ASSY	
62	X-4917-723-1	INSULATOR ASSY	
63	4-908-711-01	LABEL, CAUTION, LENS	

5-3.


104
106
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121
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901
125
127
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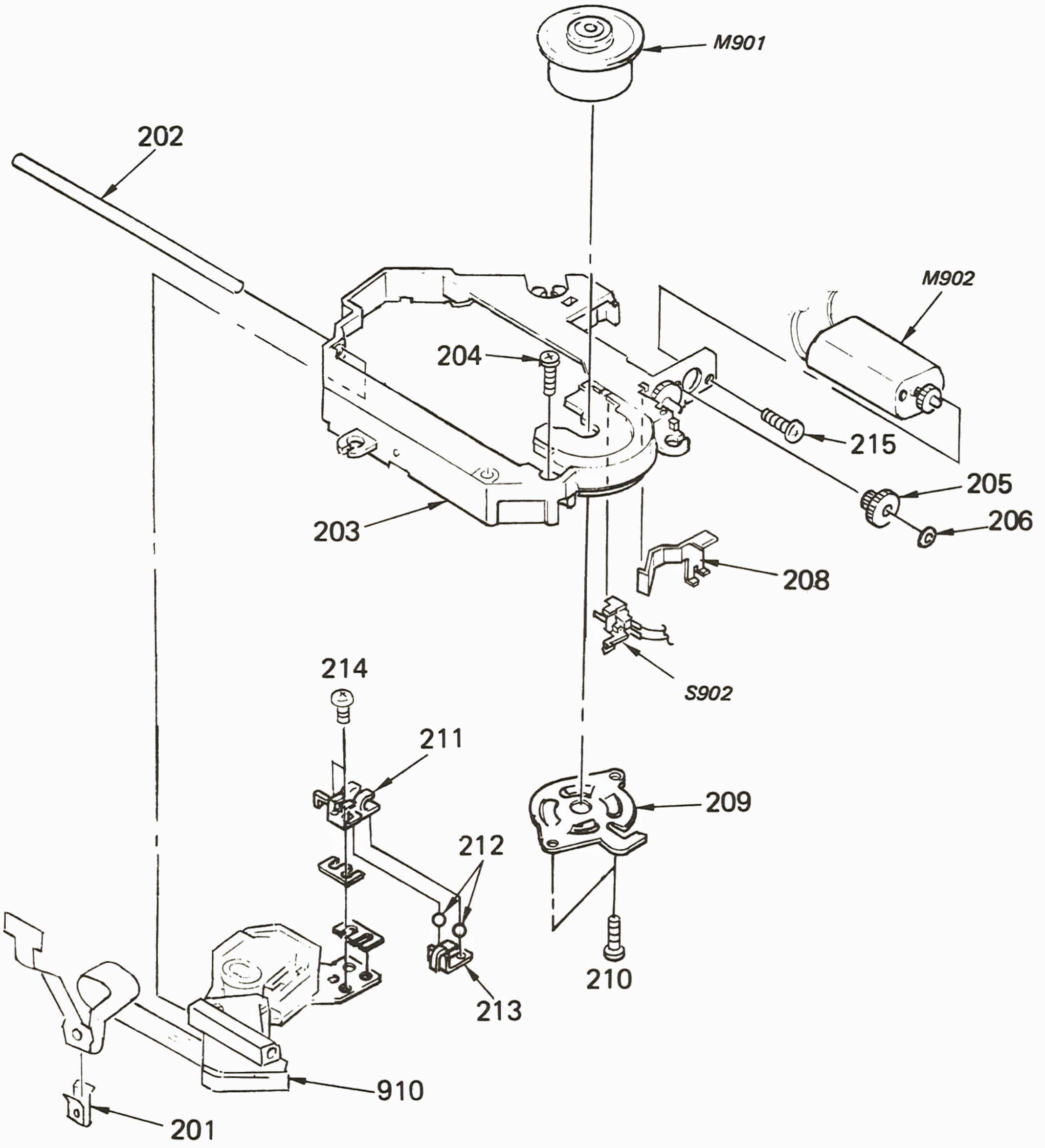
101
111
905
120
101
906
903
112
113
114
115
120
904
102
101
116
117
118
102
119
101
902
ND801
120
124
101
120
101
120
126

No.	Part No.	Description	Remarks
101	3-831-441-XX	CUSHION, SPEAKER	
102	3-335-797-21	SCREW (M1.4X3), TOOTHED LOCK	
103	4-924-139-01	SHEET, ADHESIVE, CHASSIS COVER	
104	4-924-138-01	COVER, CHASSIS	
105	4-917-745-01	SPRING	
106	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
107	*4-917-753-01	SPRING	
108	4-917-751-01	PLATE, SLIDE, SWITCHING PLATE	
109	*4-924-141-01	SHEET, INSULATING, PC BOARD	
110	*4-924-145-01	SHEET, CASE (LOWER)	
111	3-318-203-62	SCREW (B1.7X4), TAPPING	
112	4-924-134-01	CHIP, HOLDING, TERMINAL	
113	4-924-136-01	SPRING, COMPRESSION	
114	4-924-137-01	PLATE, CONNECTION	
115	4-924-135-01	PIN, TERMINAL	
116	4-924-169-01	CASE, BATTERY	
117	4-924-133-01	CHIP, FIXED, BOTTOM PANEL	
118	3-703-816-42	SCREW (M1.4X2.5), SPECIAL HEAD	
119	4-924-155-01	KNOB, VOLUME	
120	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
121	*X-4921-210-1	CHASSIS ASSY, MAIN	
123	3-831-441-11	CUSHION (B)	
124	*4-924-182-01	SPACER, LCD	
125	*4-926-105-01	SHEET, INSULATING, SERVO PCB	
126	*4-926-102-01	COVER (A), FLEXIBLE INSULATING	
127	*A-3039-683-A	PAPER (B) ASSY, SHIELD	
901	*A-3015-732-A	PC BOARD ASSY, SERVO	
902	*A-3015-733-A	PC BOARD ASSY, MAIN	
903	*1-629-281-11	PC BOARD, JACK	
904	1-625-584-11	PC BOARD, CONNECTION FLEXIBLE	
905	1-625-585-11	PC BOARD, KEY SWITCH FLEXIBLE	
906	1-625-586-11	PC BOARD, JACK FLEXIBLE	
ND801	1-808-290-11	LCD MODULE	

5-4. MECHANISM SECTION (CDM-150)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
201	4-917-622-01	RETAINER, FLEXIBLE		211	4-921-294-01	RACK (A)	
202	4-917-611-01	SHAFT (A)		212	7-671-111-11	STEEL, BOUL 1.5MM	
203	X-4917-725-1	CHASSIS ASSY, MD		213	4-921-296-01	SPRING	
204	4-921-299-01	SCREW (1.7X8), SPECIAL		214	7-627-552-38	SCREW, PRECISION +P 1.7X3	
205	4-921-292-01	GEAR (B)		215	7-627-553-38	SCREW, PRECISION +P 2X3	
206	3-315-384-11	WASHER, STOPPER		910	⚠.8-848-096-11	DEVICE, OPTICAL KSS-165A	
208	4-921-290-01	SPRING		M901	A-3133-335-A	MOTOR ASSY, CLV (SPINDLE MOTOR)	
209	4-921-287-01	BRACKET, MOTOR		M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)	
210	4-912-432-01	SCREW (B1.4X5), TAPPING		S902	1-571-099-11	SWITCH (LIMIT)	

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description		
901	*A-3015-732-A	PC BOARD ASSY, SERVO		
902	*A-3015-733-A	PC BOARD ASSY, MAIN		
903	*1-629-281-11	PC BOARD, JACK		
904	1-625-584-11	PC BOARD, CONNECTION FLEXIBLE		
905	1-625-585-11	PC BOARD, KEY SWITCH FLEXIBLE		
906	1-625-586-11	PC BOARD, JACK FLEXIBLE		
910	⚠8-848-096-11	DEVICE, OPTICAL KSS-165A		
C101	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C102	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C103	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C104	1-163-212-00	CERAMIC CHIP 0.002MF		50V
C105	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C106	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C107	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V
C108	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C109	1-124-225-00	ELECT 100MF	20%	6.3V
C110	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C111	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C113	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C201	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C202	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C203	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C204	1-163-212-00	CERAMIC CHIP 0.002MF		50V
C205	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C206	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C207	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V
C208	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C209	1-124-225-00	ELECT 100MF	20%	6.3V
C210	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C211	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C213	1-163-209-00	CERAMIC CHIP 0.0015MF	5%	50V
C301	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V
C302	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V
C303	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C304	1-131-381-00	TANTALUM 47MF	10%	10V
C305	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C306	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V
C307	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V
C308	1-135-161-21	TANTAL. CHIP 22MF	20%	6.3V
C401	1-124-225-00	ELECT 100MF	20%	6.3V
C402	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C403	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C404	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
C405	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V
C406	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C407	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C408	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
C409	1-135-159-21	TANTAL. CHIP 10MF	20%	16V
C410	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C411	1-126-357-11	ELECT 150MF	20%	16V
C412	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C413	1-131-365-00	TANTALUM 10MF	10%	16V
C414	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C415	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
C416	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C501	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C502	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C503	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C504	1-135-145-11	TANTAL. CHIP 0.47MF	20%	25V
C505	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C506	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C507	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C508	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C509	1-135-157-21	TANTAL. CHIP 22MF	20%	4V
C510	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C511	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C512	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C513	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C514	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C515	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C517	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C518	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C519	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C520	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V
C521	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C522	1-135-157-21	TANTAL. CHIP 22MF	20%	4V
C523	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C524	1-135-157-21	TANTAL. CHIP 22MF	20%	4V
C525	1-135-130-11	TANTAL. CHIP 4.7MF	20%	6.3V
C526	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C527	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C528	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C529	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C530	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C531	1-135-157-21	TANTAL. CHIP 22MF	20%	4V
C532	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C533	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C534	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C535	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C536	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C537	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

Ref.No.	Part No.	Description		
C538	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C539	1-135-157-21	TANTAL. CHIP 10MF	20%	4V
C540	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C541	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C542	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C543	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C545	1-131-381-00	TANTALUM 47MF	10%	10V
C546	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C547	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
C548	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C549	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V
C550	1-162-638-11	CERAMIC CHIP 1MF		16V
C551	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C552	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C553	1-162-638-11	CERAMIC CHIP 1MF		16V
C554	1-162-638-11	CERAMIC CHIP 1MF		16V
C555	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C556	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C557	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
C558	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C559	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C560	1-124-576-11	ELECT 220MF	20%	4V
C601	1-162-638-11	CERAMIC CHIP 1MF		16V
C602	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C603	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C604	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C605	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C606	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C607	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C801	1-135-157-21	TANTAL. CHIP 22MF	20%	4V
C802	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C803	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C804	1-135-149-21	TANTAL. CHIP 2.2MF	20%	6.3V
C805	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C806	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C808	1-162-638-11	CERAMIC CHIP 1MF		16V
C809	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C810	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C811	1-135-162-21	TANTAL. CHIP 33MF	20%	4V
C813	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C814	1-135-103-00	TANTAL. CHIP 3.3MF	20%	4V
C815	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C816	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C817	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C818	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C819	1-135-174-11	TANTAL. CHIP 10MF	20%	10V
CN401	1-535-608-21	TERMINAL, BATTERY		
CN501	1-563-546-11	HOUSING, CONNECTOR 12P		
CN502	1-563-552-11	SOCKET, CONNECTOR 4P		
D401	8-719-938-78	DIODE SB10-05PCP		
D403	8-719-100-05	DIODE 1S2837		
D405	8-719-938-75	DIODE SB05-05CP		
D406	8-719-100-05	DIODE 1S2837		
D407	8-719-105-63	DIODE RD4.3M-B1		
D408	8-719-800-76	DIODE 1SS226		
D409	8-719-938-78	DIODE SB10-05PCP		
D410	8-719-800-76	DIODE 1SS226		
D411	8-719-100-05	DIODE 1S2837		

Ref.No.	Part No.	Description		
D412	8-719-100-05	DIODE 1S2837		
D413	8-719-938-78	DIODE SB10-05PCP		
D414	8-719-938-72	DIODE SB01-05CP		
D415	8-719-100-05	DIODE 1S2837		
D485	8-719-105-73	DIODE RD4.7M-B2		
D501	8-719-938-72	DIODE SB01-05CP		
D502	8-719-938-72	DIODE SB01-05CP		
D503	8-719-938-72	DIODE SB01-05CP		
D504	8-719-938-72	DIODE SB01-05CP		
D801	8-719-100-05	DIODE 1S2837		
D802	8-719-100-05	DIODE 1S2837		
D803	8-719-100-05	DIODE 1S2837		
D804	8-719-100-05	DIODE 1S2837		
D805	8-719-938-72	DIODE SB01-05CP		
D806	8-719-938-72	DIODE SB01-05CP		
D807	8-719-100-05	DIODE 1S2837		
D808	8-719-938-72	DIODE SB01-05CP		
D809	8-719-100-05	DIODE 1S2837		
D810	8-719-105-91	DIODE RD5.6M-B2		
D811	8-719-800-76	DIODE 1SS226		
D813	8-719-100-03	DIODE 1S2835		
D814	8-719-100-05	DIODE 1S2837		
D816	8-719-970-11	DIODE SLM-125YW		
D817	8-719-970-11	DIODE SLM-125YW		
D818	8-719-970-11	DIODE SLM-125YW		
D819	8-719-970-11	DIODE SLM-125YW		
D820	8-719-970-11	DIODE SLM-125YW		
D821	8-719-970-11	DIODE SLM-125YW		
D822	8-719-106-70	DIODE RD12M-B1		
D823	8-719-106-70	DIODE RD12M-B1		
D825	8-719-100-05	DIODE 1S2837		
D826	8-719-100-05	DIODE 1S2837		
IC301	8-759-983-79	IC PCM-66P		
IC302	8-759-630-75	IC M51568FP		
IC303	8-759-946-27	IC CXD1316DM		
IC501	8-752-033-55	IC CXA1271Q		
IC502	8-752-033-54	IC CXA1272Q-Z		
IC503	8-759-970-89	IC BA10358F		
IC504	8-759-030-17	IC MPC1715FU		
IC505	8-759-230-43	IC TC7S04F		
IC601	8-759-947-02	IC CXD1125Q		
IC602	8-752-323-65	IC CXK5816M-15L		
IC801	8-752-808-85	IC CXP5086-047Q		
IC802	8-759-700-90	IC NJM2901M		
J301	1-563-280-21	JACK (LINE OUT)		
J302	1-563-280-11	JACK (PHONES)		
J401	1-562-961-11	JACK (DC IN 9V)		
J801	1-563-280-31	JACK (REMOTE)		
JR802	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR804	1-216-296-00	METAL GLAZE 0	5%	1/8W
L402	1-412-142-11	INDUCTOR CHIP 100UH		
L403	1-412-031-11	INDUCTOR CHIP 47UH		
L501	1-412-029-11	INDUCTOR CHIP 10UH		
L502	1-412-142-11	INDUCTOR CHIP 100UH		
L503	1-412-032-21	INDUCTOR CHIP 100UH		
L504	1-412-142-11	INDUCTOR CHIP 100UH		
L505	1-412-142-11	INDUCTOR CHIP 100UH		

Ref.No.	Part No.	Description
M901	A-3133-335-A	MOTOR ASSY, CLV (SPINDLE MOTOR)
M902	A-3133-334-A	MOTOR SUB ASSY, FEED (SLED MOTOR)
ND801	1-808-290-11	LCD MODULE
Q101	8-729-159-64	TRANSISTOR 2SD596
Q201	8-729-159-64	TRANSISTOR 2SD596
Q301	8-729-159-64	TRANSISTOR 2SD596
Q401	8-729-162-43	TRANSISTOR 2SB624-BV3
Q402	8-729-100-66	TRANSISTOR 2SC1623
Q403	8-729-901-00	TRANSISTOR DTC124EK
Q405	8-729-100-75	TRANSISTOR 2SA812-M5
Q406	8-729-159-64	TRANSISTOR 2SD596
Q407	8-729-162-43	TRANSISTOR 2SB624-BV3
Q408	8-729-903-10	TRANSISTOR FMW1
Q409	8-729-101-07	TRANSISTOR 2SB798
Q410	8-729-901-03	TRANSISTOR DTC144WK
Q411	8-729-901-00	TRANSISTOR DTC124EK
Q412	8-729-207-55	TRANSISTOR RN1401
Q413	8-729-100-66	TRANSISTOR 2SC1623
Q414	8-729-901-05	TRANSISTOR DTA124EK
Q415	8-729-901-03	TRANSISTOR DTC144WK
Q416	8-729-901-00	TRANSISTOR DTC124EK
Q417	8-729-101-07	TRANSISTOR 2SB798
Q418	8-729-903-10	TRANSISTOR FMW1
Q419	8-729-901-00	TRANSISTOR DTC124EK
Q420	8-729-901-00	TRANSISTOR DTC124EK
Q421	8-729-901-05	TRANSISTOR DTA124EK
Q422	8-729-901-00	TRANSISTOR DTC124EK
Q423	8-729-116-06	TRANSISTOR 2SK160-K6
Q424	8-729-901-00	TRANSISTOR DTC124EK
Q425	8-729-100-05	TRANSISTOR 2SA812-M5
Q426	8-729-901-05	TRANSISTOR DTA124EK
Q427	8-729-100-05	TRANSISTOR 2SA812-M5
Q428	8-729-902-96	TRANSISTOR FMS1
Q429	8-729-903-10	TRANSISTOR FMW1
Q430	8-729-116-06	TRANSISTOR 2SK160-K6
Q431	8-729-101-07	TRANSISTOR 2SB798
Q432	8-729-901-00	TRANSISTOR DTC124EK
Q433	8-729-101-07	TRANSISTOR 2SB798
Q435	8-729-162-43	TRANSISTOR 2SB624-BV3
Q501	8-729-402-90	TRANSISTOR XN4609
Q502	8-729-162-44	TRANSISTOR 2SB624-BV4
Q503	8-729-271-23	TRANSISTOR 2SC2712
Q504	8-729-271-23	TRANSISTOR 2SC2712
Q801	8-729-901-00	TRANSISTOR DTC124EK
Q803	8-729-920-28	TRANSISTOR FMG9
Q804	8-729-901-05	TRANSISTOR DTA124EK
Q805	8-729-159-64	TRANSISTOR 2SD596
Q806	8-729-901-05	TRANSISTOR DTA124EK
Q807	8-729-907-39	TRANSISTOR IMD2
Q808	8-729-901-06	TRANSISTOR DTA144EK
Q809	8-729-901-05	TRANSISTOR DTA124EK
Q810	8-729-159-64	TRANSISTOR 2SD596
R101	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W
R102	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R103	1-216-833-11	METAL GLAZE 10K 5% 1/16W
R104	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R105	1-216-699-11	METAL CHIP 100K 0.50% 1/10W
R106	1-216-699-11	METAL CHIP 100K 0.50% 1/10W

Ref.No.	Part No.	Description
R107	1-216-748-11	METAL GLAZE 39K 5% 1/10W
R108	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R109	1-216-833-11	METAL GLAZE 10K 5% 1/16W
R110	1-216-009-00	METAL GLAZE 22 5% 1/10W
R111	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R112	1-216-033-00	METAL GLAZE 220 5% 1/10W
R113	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R114	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R201	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W
R202	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R203	1-216-833-11	METAL GLAZE 10K 5% 1/16W
R204	1-216-683-11	METAL CHIP 22K 0.50% 1/10W
R205	1-216-699-11	METAL CHIP 100K 0.50% 1/10W
R206	1-216-699-11	METAL CHIP 100K 0.50% 1/10W
R207	1-216-748-11	METAL GLAZE 39K 5% 1/10W
R208	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R209	1-216-833-11	METAL GLAZE 10K 5% 1/16W
R210	1-216-009-00	METAL GLAZE 22 5% 1/10W
R211	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R212	1-216-033-00	METAL GLAZE 220 5% 1/10W
R213	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R214	1-216-845-11	METAL GLAZE 100K 5% 1/16W
R301	1-216-298-00	METAL GLAZE 2.2 5% 1/10W
R302	1-216-013-00	METAL GLAZE 33 5% 1/10W
R303	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R401	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R403	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R404	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W
R405	1-216-106-00	METAL GLAZE 240K 5% 1/10W
R406	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R408	1-216-045-00	METAL GLAZE 680 5% 1/10W
R409	1-216-041-00	METAL GLAZE 470 5% 1/10W
R410	1-216-045-00	METAL GLAZE 680 5% 1/10W
R411	1-216-041-00	METAL GLAZE 470 5% 1/10W
R412	1-216-092-00	METAL GLAZE 62K 5% 1/10W
R413	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R414	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R415	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R416	1-216-033-00	METAL GLAZE 220 5% 1/10W
R417	1-216-658-11	METAL CHIP 2K 0.50% 1/10W
R418	1-216-664-11	METAL CHIP 3.6K 0.50% 1/10W
R419	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W
R420	1-216-095-00	METAL GLAZE 82K 5% 1/10W
R421	1-216-041-00	METAL GLAZE 470 5% 1/10W
R422	1-216-041-00	METAL GLAZE 470 5% 1/10W
R423	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R426	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W
R427	1-217-806-11	METAL GLAZE 1 5% 1/8W
R428	1-217-806-11	METAL GLAZE 1 5% 1/8W
R429	1-216-075-00	METAL GLAZE 12K 5% 1/10W
R430	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W
R435	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R436	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R437	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R438	1-216-041-00	METAL GLAZE 470 5% 1/10W
R439	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R440	1-216-081-00	METAL GLAZE 22K 5% 1/10W

Ref.No.	Part No.	Description			
R441	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R442	1-216-017-00	METAL GLAZE	47	5%	1/10W
R443	1-216-041-00	METAL GLAZE	470	5%	1/10W
R444	1-216-324-11	METAL GLAZE	10K	1%	1/10W
R501	1-216-024-00	METAL GLAZE	91	5%	1/10W
R502	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R503	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R504	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R506	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R507	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R508	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R510	1-216-150-00	METAL GLAZE	10	5%	1/8W
R511	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R512	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R513	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W
R514	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R515	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R516	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R517	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R518	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R519	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R520	1-216-844-11	METAL GLAZE	82K	5%	1/16W
R521	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R522	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R523	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R524	1-216-114-00	METAL GLAZE	510K	5%	1/10W
R525	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R526	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R527	1-216-687-11	METAL CHIP	33K	0.50%	1/10W
R528	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R529	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W
R530	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R531	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R532	1-216-687-11	METAL CHIP	33K	0.50%	1/10W
R533	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R534	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R536	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R538	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R539	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R540	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R542	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R543	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R544	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R545	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R546	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R548	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R549	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R550	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R551	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R552	1-216-827-11	METAL GLAZE	3.3K	5%	1/16W
R553	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R554	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R601	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R602	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R603	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R801	1-216-073-00	METAL GLAZE	10K	5%	1/10W

Ref.No.	Part No.	Description			
R802	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R803	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R804	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R805	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R806	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R807	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R808	1-216-041-00	METAL GLAZE	470	5%	1/10W
R809	1-216-009-00	METAL GLAZE	22	5%	1/10W
R810	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R812	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R815	1-216-021-00	METAL GLAZE	68	5%	1/10W
R816	1-218-163-11	METAL GLAZE	120K	1%	1/10W
R817	1-216-694-11	METAL CHIP	62K	0.50%	1/10W
R818	1-216-329-11	METAL GLAZE	5.1K	1%	1/10W
R819	1-216-654-11	METAL CHIP	1.3K	0.50%	1/10W
R820	1-216-653-11	METAL CHIP	1.2K	0.50%	1/10W
R821	1-216-086-00	METAL GLAZE	36K	5%	1/10W
R823	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R824	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R825	1-216-021-00	METAL GLAZE	68	5%	1/10W
R826	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R829	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R831	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R832	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R833	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R834	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R835	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R836	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R837	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R838	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R839	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R840	1-216-085-00	METAL GLAZE	33K	5%	1/10W
RV301	1-237-092-11	RES, VAR, CARBON 10K/10K (VOLUME)			
RV401	1-237-325-11	RES, ADJ, METAL GLAZE 4.7K			
RV402	1-237-328-11	RES, ADJ, METAL GLAZE 47K			
RV501	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K			
RV502	1-230-871-11	RES, ADJ, METAL GLAZE 22K			
RV503	1-230-873-11	RES, ADJ, METAL GLAZE 47K			
RV504	1-237-575-11	RES, ADJ, METAL GLAZE 1.0K			
RV505	1-230-873-11	RES, ADJ, METAL GLAZE 47K			
RV801	1-237-143-11	RES, ADJ, METAL GLAZE 10K			
S801	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(■)			
S802	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(▶/❚❚)			
S803	1-570-204-11	SWITCH, KEY BOARD (PLAY MODE)			
S804	1-570-204-11	SWITCH, KEY BOARD (ENTER REMAIN)			
S805	1-570-204-11	SWITCH, KEY BOARD (KEY MODE)			
S806	1-570-204-11	SWITCH, KEY BOARD (▶▶|)			
S807	1-570-204-11	SWITCH, KEY BOARD (|◀◀)			
S808	1-570-397-11	SWITCH, SLIDE (◢—HOLD)			
S901	1-554-911-11	SWITCH, LEAF (DOOR)			
S902	1-571-099-11	SWITCH (LIMIT)			
X601	1-567-737-11	VIBRATOR, CRYSTAL (16.9344MHz)			
X801	1-577-064-11	VIBRATOR, CHIP CERAMIC (3.58MHz)			

ACCESSORY & PACKING MATERIAL

1-463-694-11	(Canadian).....ADAPTOR, AC (AC-930A)
1-463-700-11	(UK)...........ADAPTOR, AC (AC-930A)
1-463-701-11	(Australian)...ADAPTOR, AC (AC-930A)
1-463-702-11	(E)............ADAPTOR, AC (AC-950W)
1-463-705-11	(AEP,Franch)...ADAPTOR, AC (AC-930AEP)
1-463-968-11	(US)...........ADAPTOR, AC (AC-940)
1-526-565-00	(E)...AC PLUG ADAPTOR
1-528-255-21	BATTERY PAC (BP-2)
1-555-658-21	CORD, CONNECTION
2-397-316-01	(EXCEPT for E)...SHEET, PROTECTION
3-786-975-11	(AEP,UK,E,Australian,Franch) ...MANUAL, INSTRUCTION
3-786-975-21	(US,Canadian)...MANUAL, INSTRUCTION
3-786-975-31	(Canadian)......MANUAL, INSTRUCTION
3-786-975-41	(AEP)...........MANUAL, INSTRUCTION
*4-926-125-01	CUSHION (UPPER)
*4-926-126-01	(US,Canadian,E)....CUSHION (LOWER)
*4-926-146-01	(AEP,UK,Australian,Franch) ...CUSHION (LOWER)
*4-926-130-01	(US)...........INDIVIDUAL CARTON
*4-926-132-01	(Canadian).....INDIVIDUAL CARTON
*4-926-134-01	(UK)...........INDIVIDUAL CARTON
*4-926-137-01	(AEP,Australian,Franch)...INDIVIDUAL CARTON
*4-926-138-01	(E)............INDIVIDUAL CARTON
4-926-143-01	CASE, CARRYING
8-952-266-89	(US,UK,Franch)...HEADPHONE MDR-A10L/A SET

9-953-590-11

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